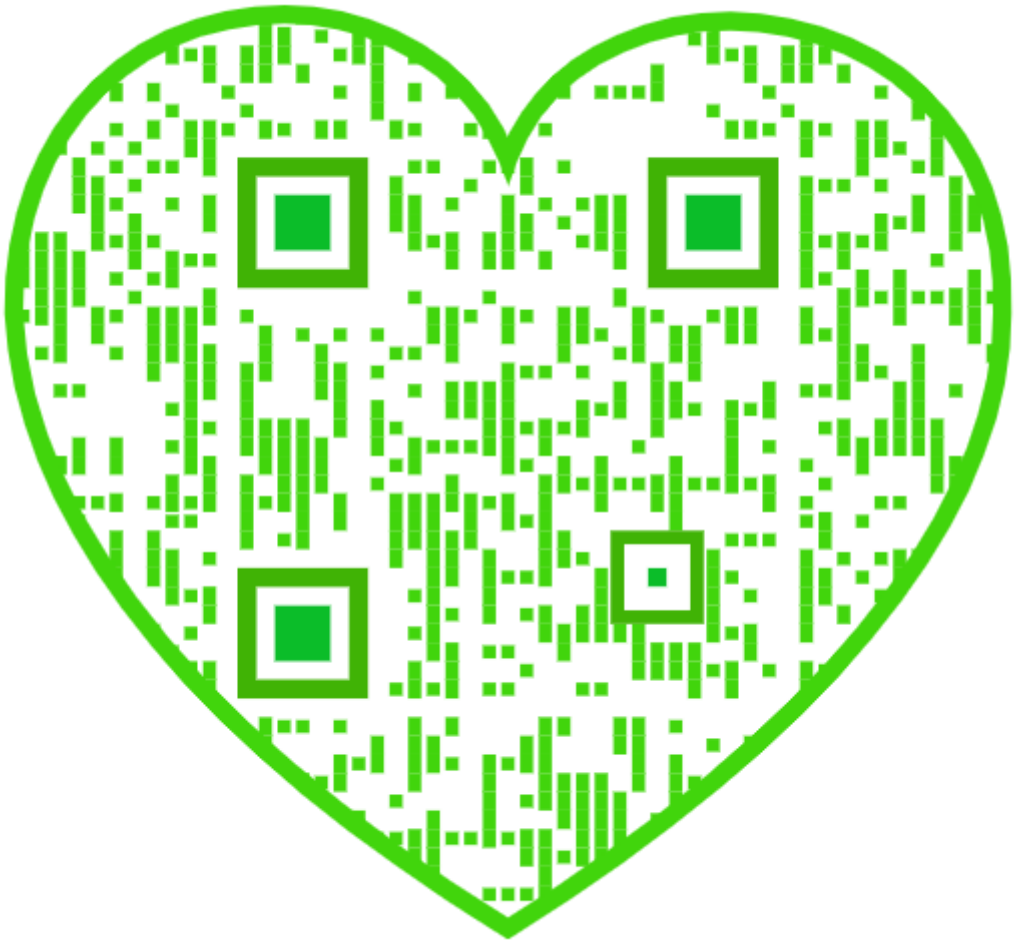

HAND-BOOK

OF

HOUSEHOLD SCIENCE

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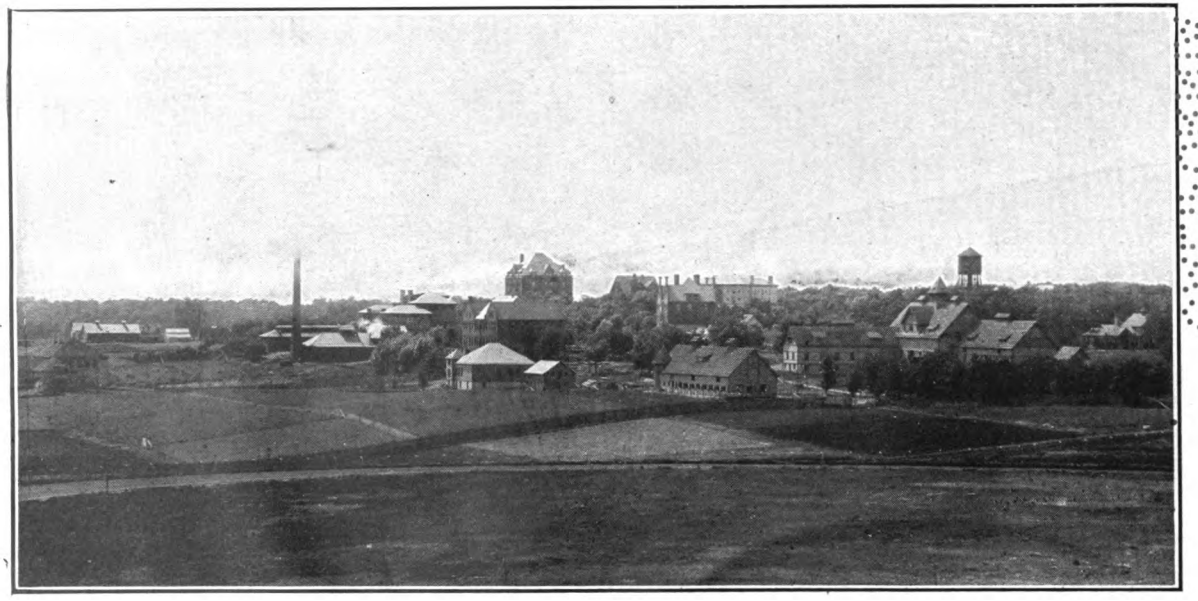
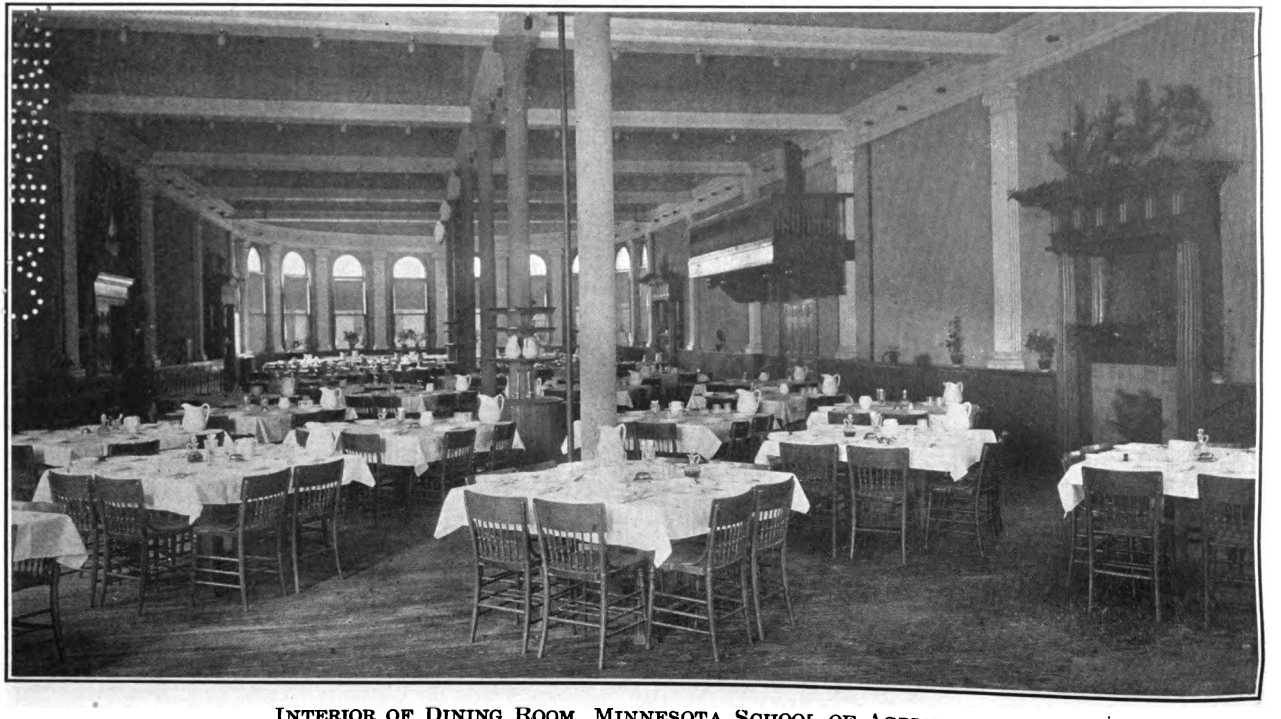
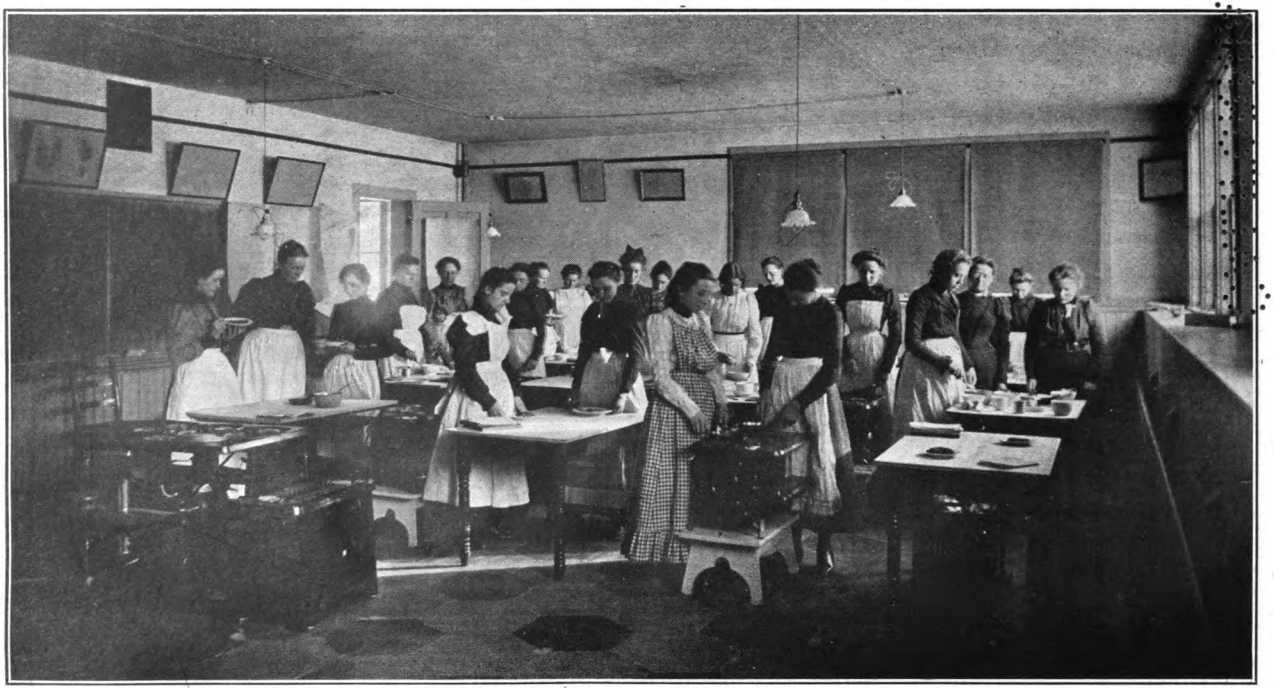


BIRDSEYE VIEW OF THE DEPARTMENT OF AGRICULTURE, UNIVERSITY OF MINNESOTA.



INTERIOR OF DINING ROOM, MINNESOTA SCHOOL OF AGRICULTURE.



A Section of Class in Cookery at Work.

DINING HALL, SCHOOL OF AGRICULTURE, ST. ANTHONY PARK, MINN.

CLASS IN COOKERY.

PREFACE.

This text will be found useful in the class room, and it will also serve as a manual for the housewife in the farm home. It treats of the philosophy of cooking. It gives directions for preparing and serving many of the substantial, and some embellishing, dishes. It treats of the kitchen and dining room, and gives suggestions on their furnishing and care.

In preparing this book, the author has consulted many books and magazines devoted to the subject of household science. The literature on the subject of foods, which is issued by the department at Washington, is regularly received, and has been freely consulted in revising the notes and lectures used in the school room each year. The book is largely a compilation of these lectures and notes, supplemented by formulae for the preparation and serving of the various dishes. The formulae are such as have been found reliable by use in the school rooms and culinary departments over which it has been the author's privilege to preside.

The formulae marked "class work" give directions, usually, for dishes sufficient for two people, as these amounts have been found most practical for the schools in which used. The young housewife will find them about what she wishes. The teacher who finds a smaller amount better, can easily divide the formulae for most dishes without changing the proportions of the ingredients and thus make small formulae which will be reliable.

JUNIATA L. SHEPPERD.

St. Anthony Park, Minn.,
Sept. 20, 1902.

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HOUSEHOLD SCIENCE.

CHAPTER I.

FUELS.

The value of a fuel is estimated by determining the amount of moisture, of volatile matter, and of fixed carbon and sulphur it contains. The principal fuels occur in the solid, liquid, and gaseous forms. Chief among the solid fuels are coal, wood, charcoal, and coke. The distribution of coal is general over the United States and Europe. Although the coal fields of the United States are shallow compared with those of Nova Scotia and parts of Europe, they are sufficiently extensive to render them the richest in the world.

Varieties of Coal.

Coals are divided in the first place into hard and soft coal. The hard coal is known as "anthracite" or "glance," the soft, as "black" or "bituminous," coal. Each of these groups may be subdivided into several varieties.

Graphite may be placed at the base of the series of coal formations. This represents coal deprived of all its volatile matter and a very large portion of the original carbon, but practically none of the original ash. Graphite is practically incombustible, and is never used as a fuel, and is not listed among coals.

Anthracite coal comes next in the series as regards hardness and amount of carbon. It contains from three to ten per cent. of volatile matter, and sometimes as high as ninety-five per cent. of carbon. This variety of min-

eral coal contains a small amount of hydrogen, and consequently burns almost without flame. Anthracite coal is a clean and convenient fuel for household use. Its available heating power is high. It has great durability in combustion, and it is possible to gain practically complete combustion by sifting the ashes and reusing the partially burned coal. It is a better winter than summer fuel for kitchen use, because it is so much more difficult to kindle a fire with coal than with wood, and it is easier to have a good fire and then extinguish it when using wood. The greatest objection to this coal as a household fuel is its expense. It makes a hot, steady fire, and is pleasant to handle.

Semi-bituminous coal comes next in the line of hardness. It contains from ten to eighteen per cent. of gaseous matter. It kindles more readily than anthracite coal, has a high heating power, and cakes in the fire. As a coal for household purposes, it ranks next to anthracite coal. It burns more freely in an open grate than anthracite coal, but it is less cleanly.

The bituminous or soft coals are divided into coking, furnace, and cannel coals. In bituminous coal, the amount of volatile matter varies from eighteen to fifty per cent. of the entire mass.

The coking coals melt and adhere in burning, and when the gaseous matter has escaped, a mass of coke remains. Most bituminous coals belong to this variety, of which the Pittsburg coal may be taken as a type. Bituminous coals are extensively employed for the generation of steam, and, when coked, for smelting metals. Their tendency to adhere in masses when burning prevents their being used for this in their raw state. This variety of coal is a good heat producer, but on account of the large amount of volatile matter contained, it produces a great quantity of smoke and soot. In some localities it is expedient to use it because it is the cheapest fuel. Extreme

care is necessary, when it is burned in the kitchen range, to prevent the light, black, tenacious particles of soot escaping into the room. It is also very unpleasant to handle.

Coking coals sometimes contain much sulphur, and when so contaminated they are not prized as gas coal, but when sufficiently free from this they are much used in the production of illuminating gas. The cannel coals exceed these in the volume and illuminating power of their gas, but the coking coals furnish the most valuable coke.

The furnace coals are those bituminous coals which do not melt or adhere in the fire.

Cannel coals form a third variety of coals, and differ from other bituminous coals in the following particulars: They are more homogeneous in texture, contain less pitch, and are less brilliant; they have a low heating power, but are esteemed in some localities as a household fuel.

Coke.

Coke is manufactured from coal, and may be produced in two ways: It may be a by-product of the distillation of coal for the production of tar, ammonia, etc., or it may be obtained by heating the coal in a coke oven with an almost entire exclusion of air. It has a dull appearance, and gives a metallic ring when struck. That made in the oven or kiln of brick or stone is the best quality of coke, and is used for melting pig iron, and for smelting copper and lead. Coke was formerly made by a method similar to that used in the manufacture of vegetable charcoal. Much of the coke found in fuel markets is that produced as a by-product in the manufacture of gas. This is not equal to the best oven coke, but is a reasonably good heat producer, and is much more cleanly than bituminous coal. No special stove or furnace is needed for burning it. It burns out grates and fixtures more than other fuels. Coke,

like charcoal, needs to be stored in a dry place, as its porous nature causes it to absorb much moisture, and this interferes very materially with its value as a fuel.

Charcoal.

Charcoal bears the same relation to wood as coke does to coal. The manufacture of coke and charcoal are both processes of destructive distillation. Usually means are employed to save the useful materials which are driven off by the heat.

Charcoal makes an excellent fire for broiling meats, as it, like the coke, burns with a bluish flame, without smoke, deposits no soot, and yields an intense heat. Charcoal can be very economically used for a broiling fire in the range when there is no fire needed for other things. When through using the coal, extinguish it with water, and when thoroughly dried it will burn equally well.

Wood.

Wood is more universally used as a fuel than coal, oil, and gas. In many cases it is cheaper than hard coal, and cleaner than soft coal. Gas is a pleasant fuel for cooking purposes, but is not generally available, and is expensive in some localities. Wood, to be most valuable as a fuel, must be dense and dry. Green wood contains much moisture, and it is not possible to have so hot a fire quickly with it. As this is often needed in the kitchen, it is better to avoid green wood, because some heat must be used up in vaporizing the water in the wood. The amount of water varies, but forms from one-fifth to one-half the weight of the wood. The essential elements of wood are carbon, hydrogen, and oxygen. There is mineral matter present, also, as is shown by the ash after the wood is burned.

Wood for fuel purposes may be divided into hard and soft woods. The same rule holds good in wood as in coal in this respect,—the hard fuel is the best. Hard

wood, such as oak or hickory, gives a nice bed of glowing coals, which continue to yield heat long after the blaze is gone.

When a steady fire is required for baking, a few sticks of hard wood of good size will make it possible to control the heat during a long period of time. Soft wood burns to ashes very quickly, gives a good heat, but needs constant watching and replenishing.

In order to have wood serve its purpose best in the kitchen range, it must be cut long enough before using to give it time to become thoroughly dried out or seasoned. Trees for fuel should not be cut when they are what the woodmen call "in sap"; that is, when they are in leaf, or after the buds begin to swell in the spring. Such wood is more apt to be infested by insects, and decay sets in sooner.

Wood when ready for the stove should be short enough to be admitted readily, but not so short as to pack the fire. When seasoned and cut, it should be packed in a dry place. Moisture from rain dries out more quickly than the natural moisture from the tree, but decreases the value of the fuel, and annoys the housekeeper as well. The wood itself burns better than the bark, and produces less ashes.

In buying wood, avoid that which has many crooked or knotty sticks. It will not lie close, and what is gained in the resinous knots of the soft wood will hardly compensate for what is lost in measure. The absence of bark, or the shelling off of the bark, is an indication that the wood has passed its best stage, and begun to deteriorate slightly. Soft wood is better than hard wood for kindling, because more easily manipulated, and it also burns more readily.

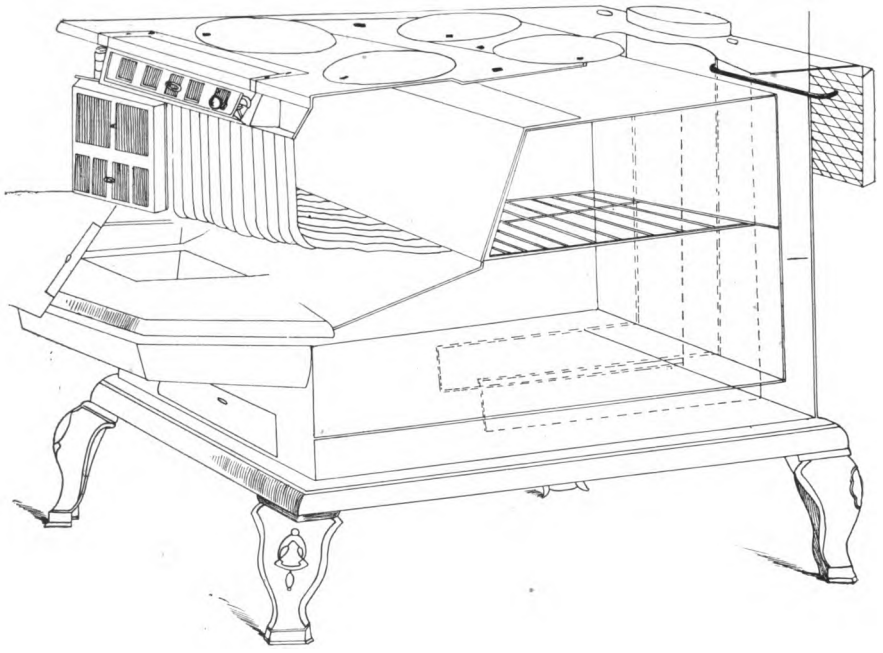
Peat.

Peat is of vegetable origin. It is found in marshy places, and is always wet, even if not saturated with wa-

ter. The roots and vegetable fibres are in different stages of decay, and the bottom layers are black, unctuous, and much more dense than the fresher growth. It is taken out in blocks, dried, and used for fuel. Air-dried peat averages about fifteen per cent. water. Peat makes much ash, the amount varying from four or five to twenty-five per cent.

Liquid Fuels.

The most common liquid fuels are kerosene, gasoline,



Inner Construction of Range.

and the two kinds of alcohol,—the ethyl, or common alcohol, and the methyl, or wood alcohol.

To use kerosene satisfactorily as a summer fuel, two things are necessary: The oil must be of good grade,—that is, have a high flashing point,—and the stove must

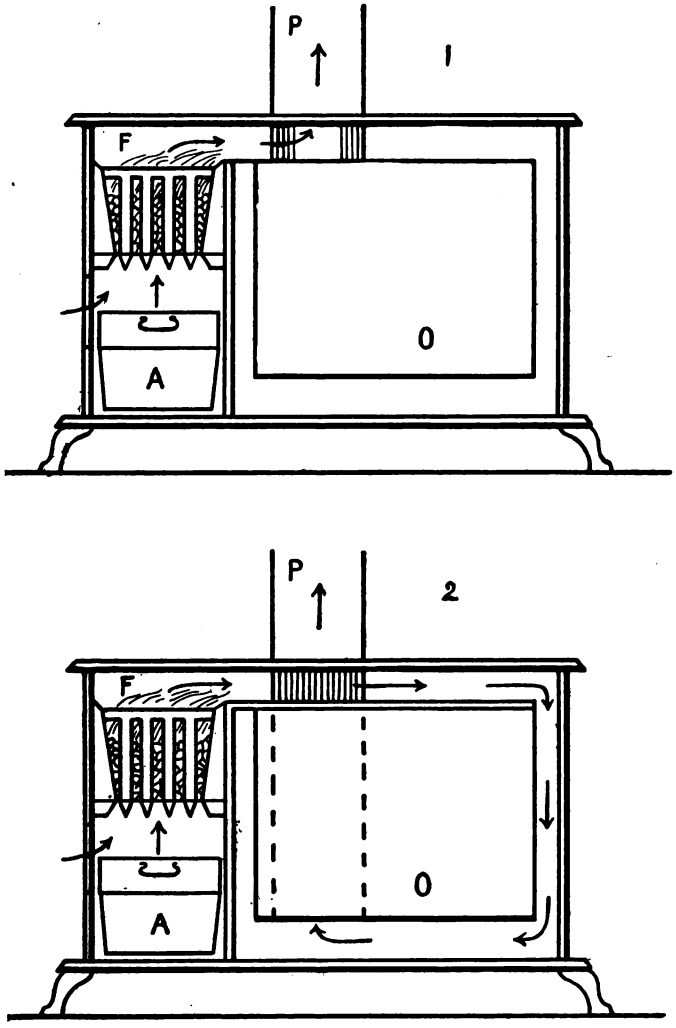


Diagram of a section of range, showing direction of hot-air currents when damper is open, as in No. 1; when closed, as in No. 2.

be kept perfectly clean. The lighter oils mix readily with kerosene, and unless it is sufficiently purified to be comparatively free from these inflammable oils, there is danger of accidents in its use, just as there is danger in using oil of poor quality in a lamp. The flashing point is fixed by law, and is usually not lower than 150°, nor higher than 200° F. With good oil, one can use a kerosene stove very comfortably if it is cared for just as is a lamp; otherwise it will smoke and make the user very unhappy.

Gasoline gives less trouble than kerosene, because the stove requires much less cleaning; but on account of the volatile nature of the gasoline, its use is always attended with some danger.

Both gasoline and kerosene are obtained by a process of refining the mineral oils. Most mineral oils are obtained by boring into the earth, the same as for artesian wells. In the process of refining the crude oil, the white, solid paraffine wax is obtained, and the semi-solid vaseline, as well as many products of a liquid nature, used for various purposes.

The alcohols are about equal in fuel value. They are both, when pure, colorless, volatile liquids. They ignite by the touch of a flame; give little light, much heat, and no smoke. Methyl alcohol gives off a disagreeable odor. In using either variety, the bottle should be corked and set away before a match is lighted, if one would be sure to have no accidents. Much of the ethyl alcohol is obtained from the distillation of grains. Fermentation is the only process of production. Methyl alcohol is obtained by the process known as the "destructive distillation of wood." Much of it is one of the by-products of the charcoal kiln.

TO MAKE AND MANAGE A FIRE.

Every woman who has anything to do with the cooking should study the kitchen range until she is familiar

with every part of it, both inside and out. She must understand the use and abuse of every damper, door, and slide.

Every range has a fire box. This may be round or elongated; deep or shallow. When wood is to be used, a moderately deep and long fire box is preferable, as it will admit longer and larger sticks of wood, thus enabling one to more easily keep a steady fire. The usual openings in a fire box are a door and one or more slides. The latter admit air containing the oxygen needed by the fire. In many ranges there is also an ash damper under the fire box, which, if kept open while raking the fire, will aid in preventing the ashes entering the room, by creating an upward draft. It should not be open at other times, because it retards the burning of the fire. There is also an oven damper, either back of the oven or over it, which, when closed, forces the flames and hot smoke to pass around the oven; then, by means of divisions, as shown in the illustration, they are conveyed along the bottom of the oven to a pipe at the back part, through which they escape into the flue. The oven damper often has over it the words, "Out to use the oven," but it does not follow that it shall be out only when the oven is to be used. When a fresh fire is made, allow the smoke and heat to pass up the chimney, but as soon as the fire is burning well, adjust this damper so that the oven will be heated. This will keep the oven so that you can heat it at any time in a few minutes, and you will have a good fire with much less fuel than by allowing a strong draft, created by open dampers, to carry the heat up the chimney. Some ranges have a damper in the pipe, also, which can be used when the draft is too strong.

To Make and Manage a Wood Fire.

Take off all the stove covers and brush off the dust and ashes from the top of the oven into the fire box. Scrape the ashes from the fire box into the ash pan, and remove

and empty it. About once a week the ashes should be scraped from beneath the oven with a scraper made for the purpose.

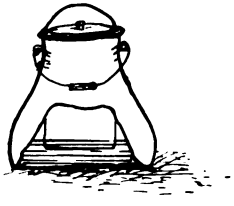
When ready to lay the fire, place on the bottom of the fire box some shavings, if you have them; otherwise prepare some paper by wringing it in the hands, and lay that in. On the paper lay a number of fine sticks extending the entire length of the grate, and crossing each other diagonally, to allow the air to circulate among them, and let the ends of the sticks rest on the supports at the ends of the fire box, that they may not press the paper or shavings too much. On these fine sticks place some thicker sticks, and criss-cross them as before. Put the covers on, and light the fire from below. As soon as the fire has burned a few minutes, and sunk a little, put on another stick or two, and when it is well started close the drafts and the oven damper to hold a steady fire, and replenish as often as necessary.

To Make and Manage a Coal Fire.

Prepare the range the same as for a wood fire. Put into the fire box several pieces of thick kindling wood, laying them across the bars of the grate a short distance apart. On these place the shavings or paper as before, letting them protrude through the bars of the grate, so that they can be lighted from below. On these place the small and the large sticks, as before, until the fire box is nearly filled, then sprinkle on a shovelful of coal, and light. Add a little coal, as needed, until a nice bed of red coals is formed, then fill the fire box with coal nearly to the top of the fire bricks. Under no circumstances fill it fuller than this, because there is nothing gained by having the top of the range red hot, and it chokes the draft, wastes the fuel, and warps the top of the stove. Leave the drafts open until the surface of the fire is covered with blue flames, then close the drafts to hold a steady fire. Do not allow the coal to burn until it is red, as the fire has

then reached its climax, and will soon begin to die out unless more coal is added; neither is it wise to allow it to burn low. If you wish to keep a brisk fire all day, add a sprinkle of coal now and then, as needed, and you will not have to wait for a fire to burn.

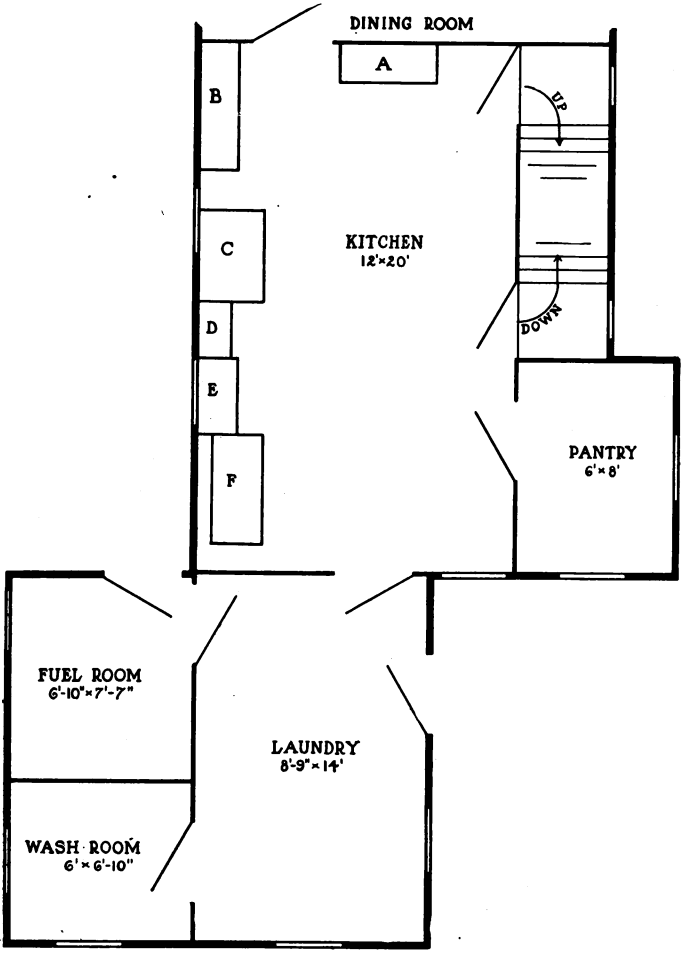
When you wish to hold the fire from one meal until the next, after the blue flame appears, partially remove one or more of the covers, and close the drafts. If the gas escapes, adjust them so as to prevent this, opening them a little later, if necessary. When ready to use the fire, put on the covers, and open the drafts until it again burns brightly. If the fire has rested thus at night, get the breakfast and then put on a shovelful of coal and let the fire burn until after breakfast; then empty the ashes into the sifter, replace the ash pan, open the ash damper, and rake the fire until free from ashes. Always



Double Boiler.—Showing height of water.

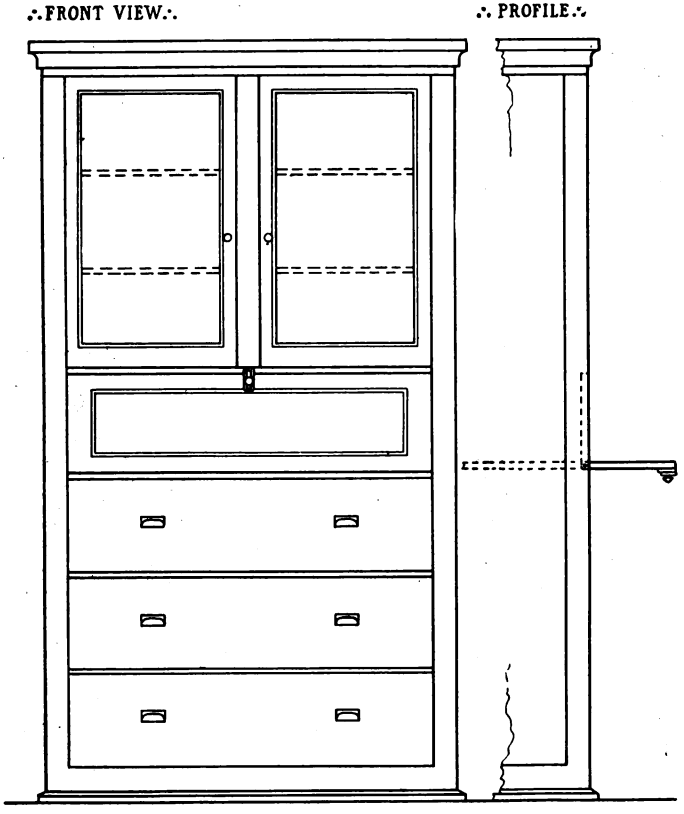
rake it from below, using a long straight poker which will pass between the bars of the grate in front, thus lifting the bed of coals and allowing the ashes to drop through into the ash pan. This also brings the clinkers up where they can be removed. Close the ash damper, sprinkle a little coal over the top, put on the covers, and open the oven damper, When this burns, put on coal nearly to the top of the fire bricks, and when the blue flame appears close the damper.

References: Johnson's Encyclopedia, p. 356; School Kitchen Text Book—Lincoln—pp. 2 to 10; Elements of Cookery—Williams & Fisher—7-23.



Plan for Large Farm Kitchen.

A—China closet between dining room and kitchen.
B—Closet for kitchen utensils, tinware, etc.
C—Movable table.
D—Draining boards.
E—Sink; if there is water in house.
F—Range.



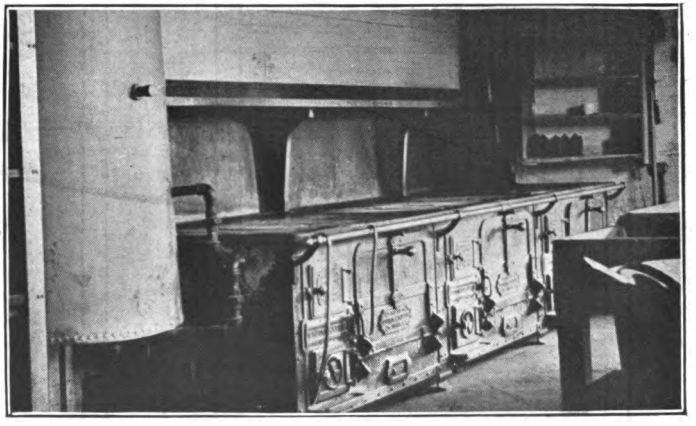
China Closet

CHAPTER II.

THE KITCHEN.

The kitchen should be light and airy. People, like plants, need a certain amount of heat and light.

The kitchen windows should move easily at top and bottom. Windows which can be opened easily permit one the more readily to clear the room of an undue amount of heat or steam. The ceiling should be high, smooth, and free as possible from angles. The height will give better air, and the smoothness will lessen the amount of collecting dust and the trouble with house pests.



Hotel Range.

It is well to have a ventilator in the roof by means of a skylight, when the kitchen is so situated that it can be done, as the odors will then escape more readily. There should be floor space sufficient for range, sink, cupboard, tables, etc., but no more than is necessary; otherwise, much extra walking is required in doing the work.

A bare floor of hardwood is best, but it is expensive, and any bare floor requires much cleaning, though it is certainly more sanitary than one that is covered. Soft wood will splinter in time, and tiling is cold and hard on the feet, but is easily kept clean, and is very durable.

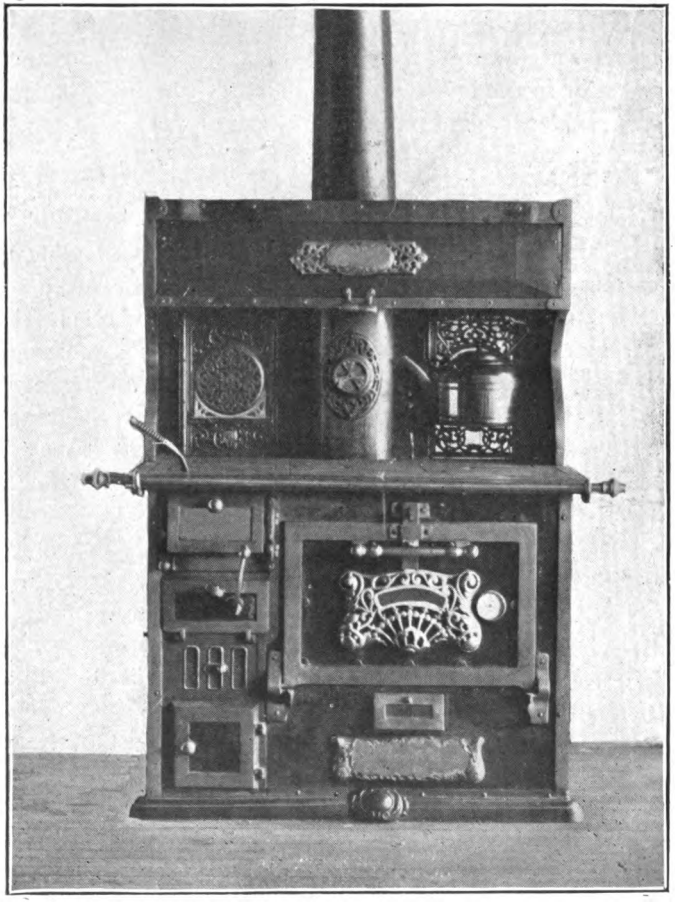
If a covering is used, linoleum is better than oilcloth, because it is warmer for the feet, and wears well. If there is water in the house, so that a sink can be used, have an iron or a porcelain one, and a strainer screwed down, to prevent clogging the pipe.

At a convenient place in the kitchen have a closet for kitchen tableware and other utensils. There should be two drawers for kitchen towels, etc. A small table on casters will be found very convenient for use when one is baking pies, etc., as it can be readily wheeled from pantry to range. It is also desirable to have a table near at hand when one is frying doughnuts, poaching eggs, or in fact doing any cooking on the top of the range. This table should be made of hardwood, that it may be easily cleaned, and should be covered with paper while in use.

The range is a very important part of the kitchen furnishings and it is necessary that it be set in a place where the light from at least one window can shine full upon it, for there are cloudy days when it is impossible to cook successfully unless one can admit much light by adjusting window shades.

There are many patterns of stoves and ranges, each having its merits and demerits. The portable and set ranges will answer for a rough classification. Set ranges require less room, but are often necessarily in a dark place and can be approached from one side only. They consume much fuel and heat up slowly. The floor near them becomes hot and uncomfortable to the feet. A portable range can be placed so as to have better light than a set range, in some cases, and as it can be approached from

more sides, less lifting of heavy vessels is necessary. It requires less fuel than a set range, heats up more quickly, but gives a smaller amount of hot water, and has some other disadvantages. There are a few things that are nec-



Kitchen Range.

essary to the successful use of any stove or range: There must be a free draught, that the fire may burn readily; there should be several checks and dampers, that the user

may be able to control the heat so as to consume no more fuel than is necessary, and also be able to direct the hot air into such parts of the range as are needed for use at the time. When the range is brought into the house, the user must at once make herself acquainted with its different dampers and checks, and study its inner construction, that she may know the use of all hot-air and smoke flues, and how to manage them. The reasons for this are obvious. The air and smoke always carry with them soot and ashes, which they deposit on the way to the top of the chimney. The soot and ashes must be removed frequently, else the range will cease to do good work.

Water should never be allowed to fall on the range. If the range is hot, it is liable to break; if cold, there is danger of rust. When it is necessary to leave the kitchen for a few minutes, remove the cover from the teakettle to prevent it boiling over. When anything is spilled on the range, wipe it off at once. The top of the range can be kept in good condition by washing with dish water after rubbing with a piece of paper. Whether the range shall be blacked, each user must decide for herself. Polish gives it a more pleasing appearance, but is hard on the clothes of the one working about the stove.

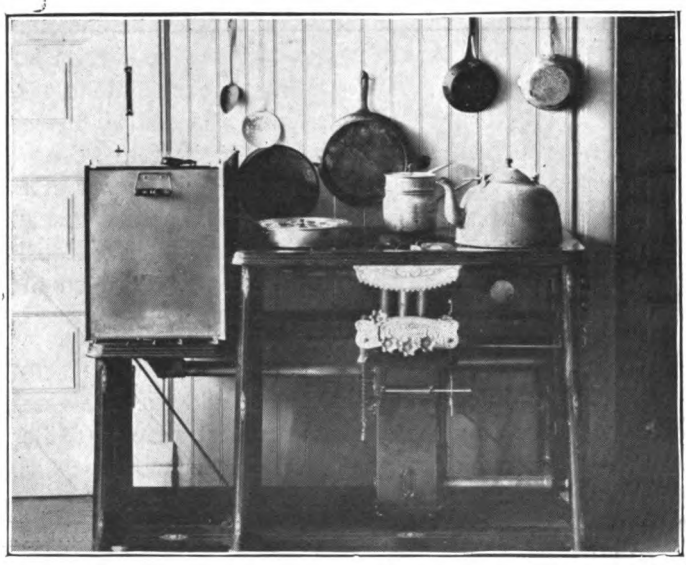
KITCHEN UTENSILS.

In selecting kitchen utensils, one should exercise great care to choose only those which are best adapted to her wants,—those which a good housekeeper really needs. Closets filled with utensils which are of no great value are not an aid to order, neatness, nor expedition in cooking.

Old iron utensils are superior to new ones, because long use has made them very smooth. In buying iron utensils, be careful to know that they are of the best quality and well finished. Iron utensils of poor quality cause much annoyance. Before being used, they should be washed and wiped perfectly dry; then the inside should be rubbed with some kind of unsalted fat, as lard. Let

the utensils stand several hours, and then wash again, put over the fire where they will heat gradually, wash again with soapy water, rinse thoroughly in hot water, and wipe perfectly dry.

Many kitchen utensils can be had in ironware lined with porcelain. These have many merits,—they are not acted upon by acids, they are thick, and consequently the degree of heat required for their contents is easily controlled, and, if carefully handled, they are durable. If allowed to become dry, the enamel is liable to crackle and subsequently chip off, and they are heavy to handle, but are easily cleaned.



Gasoline Range.

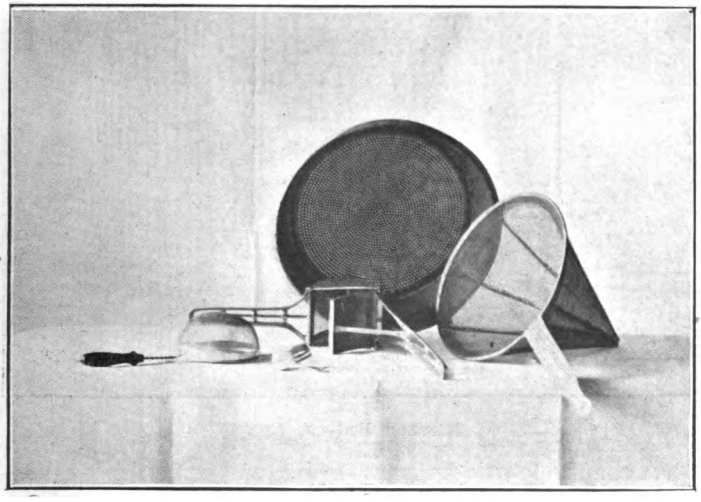
There are tin vessels with asbestos interlinings. These are good for heating milk and all things which require care to prevent burning, and which do not act on tin.

Granite ware is not acted upon by acids, is easily kept clean, and is light to handle, but, like porcelain, will chip

off if burned or allowed to fall. In buying iron utensils, porcelain-lined or granite ware, see that they are smooth and free from blemish, as any defect will soon prove the ruin of the whole in granite and porcelain-lined vessels, and is a constant source of annoyance in iron ones.

Copper vessels retain heat well, but are expensive and difficult to keep in order. They may be kept bright by rubbing with a solution of salt and vinegar, and washing in soapsuds and wiping dry. They should never be used unless perfectly bright, because the food is liable to be poisoned by the dark coating.

Aluminum cooking vessels are light and durable, but are very expensive, and, with some kinds of water, tarnish readily and are difficult to clean.

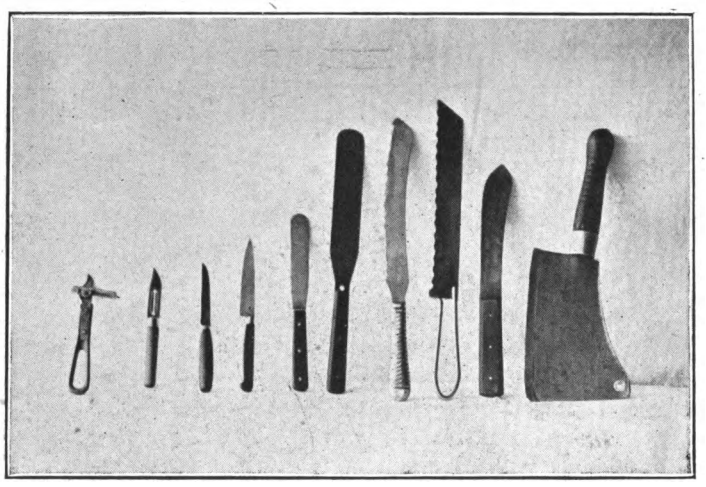


Strainers, Puree Sieve and Potato Ricer.

In buying tin vessels, select those which are smooth and heavy, and not too brilliant. The retinned is more expensive, but usually more satisfactory, as the cheap ware has very little durability. The surface of cheap tin is easily injured by heat. Tinware is best washed in soap-

suds, rinsed, and wiped dry. Some object to the use of soap in dish washing, fearing that the soap may not be clean. It is better to use home-made soap for dish washing, and, knowing that it is clean, use it freely. Granite ware and porcelain-lined vessels should be washed in soapsuds, if greasy, and then rinsed in clear water, if desired, and wiped dry. A wire dishcloth should be used with pots and kettles when necessary.

A soup digester, while not an absolute necessity, is a good thing to have if one can afford it. It must be sufficiently tight to prevent the steam escaping, else it is no better than an ordinary kettle.



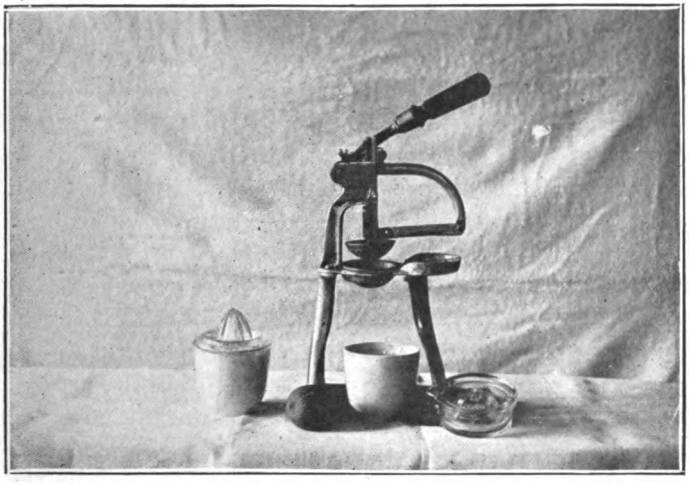
Kitchen Knives, Etc.

A soapstone griddle is expensive, and some think cakes baked on it are less tender than those baked on an iron griddle. The soapstone griddle needs no greasing, consequently there is less smoke from it than from the others when cakes are cooking. Of iron griddles there are several kinds. The common cast-iron griddle has very little polish, and is inexpensive, but not very satisfactory.

There is a thick, heavy griddle having a surface like polished steel. This is good, but expensive. There is a griddle of iron which is smooth and durable, also inexpensive. This is called "never break" ware.

If the grease burns on the griddle, scour and rub with salt to remove it, then wash clean, and wipe dry.

Cast-iron roll and gem pans are very heavy, and it takes some use to make them smooth. They give a good crust to things baked in them, but are inconvenient on account of their weight. Russia iron gem pans are light,



Lemon Squeezers.

easily cleaned, and bake well, but these are not always made so that thin batters will not exude from them. Tin pans, especially when new, do not usually give so nice a crust as either of the others. When used a while, tin bakes better, but it is never quite so satisfactory for this purpose as some other materials. Granite ware is good if used with care, but does not give a good crust very readily.

A common cast-iron spider with a short handle is very useful in the kitchen. This should have a close-fitting

cover. It will be found best for sauteing meats, and can be set in the oven when necessary. The spider should be cared for in the same way as other iron utensils.

THE PANTRY.

Adjoining the kitchen there should be a pantry. Ten by twelve feet, inside measure, is a good size. The window should have a wire screen, so that the room can be well aired, and there should be a shade of some kind to shut out the sun when necessary. A large, strong table containing two drawers should be placed near the window. There should be hooks at the end of the table, from which to suspend the pastry board, egg beater, etc. The board on which cold meats are cut, also that for bread and cake, may be hung in some convenient place. In one drawer the rolling pin, knives, pastry and cake cutters, and a few other utensils may be stored. In the other, measuring cups, steel knives, forks, etc., may be kept.

On one side of the room there should be shelves for jars or boxes, in which materials frequently used, such as coffee, tea, rice, etc., may be kept. For the daily or weekly supplies in the pantry there is nothing better than glass jars. They may be securely closed from insects, prevent loss of strength by evaporation, and permit one to see at a glance when the stores need replenishing. Some shelves should be placed up higher than can be reached from the floor, as during the summer these will be found a convenient place for empty fruit jars and such things as are not in use at the time. Near the door have a roller for the towel, to save steps while working in the pantry. Near the window, but not in the sunshine, have the refrigerator, unless there is a cold room near the kitchen in which perishable articles of food may be kept. If the house has a good cellar, a refrigerator is not a necessity, but is convenient, as it saves many steps, and preserves foods better than a cellar.

THE STOREROOM.

A storeroom is expected to be a source of comfort, security, and economy; but if it proves to be so, it must be properly managed, as well as wisely arranged. This room should be kept dry, cool, and dark. Light should be furnished by a window which can be shaded when necessary, and opened, when needed, to admit light and air. This room should have many shelves, and a step-ladder of convenient size for use here. The shelves should be made so they can be thoroughly and easily cleaned. Anything spilled on these shelves should be wiped up at once, and the entire room should be cleaned often enough to prevent dust accumulating.

Pantry and storeroom shelves may be covered with oilcloth or paper, which should be renewed often for cleanliness. Oilcloth is more satisfactory than paper, because a soiled place caused by an accident when the covering is clean can be cleaned without removing everything from the shelf. Paper has the merit of cheapness. In this room should be kept all provisions bought in quantities, except those having a strong odor, as codfish, bacon, etc. These should be kept alone in an airy place.

The room where milk and butter are kept must be dry, well-ventilated, and light. Usually the cellar will be found most desirable for this purpose, because there the temperature is more even than in a place above ground. Perfect cleanliness and frequent airing are indispensable in this place. If vegetables and milk are both kept in the same cellar, they should be put into separate rooms which do not communicate with each other, for milk and butter will readily absorb any odor which is in the air about them.

The cellar should be ventilated when the outside air is cool, for warm air which is admitted is liable to contain moisture, which, on meeting the cool air of the cellar, will be condensed, and render the cellar damp, as well as

warm. In order to avoid this, the windows should be opened late at night, and closed before sunrise, when the air is the coolest one can obtain.

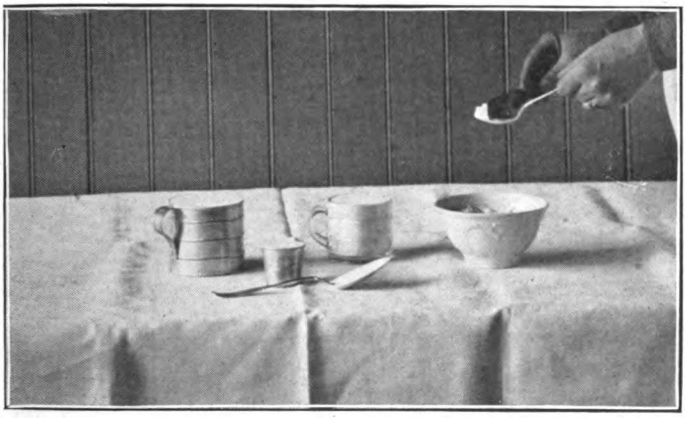
References: Parloa's Kitchen Companion, pp. 9-17, 31-42, 56-62; Elements of Cooking—Williams & Fisher—pp. 31-33, 39-49.

MEASURING.

Believing that most housekeepers prefer measuring to weighing, the recipes in this book are given almost wholly by measure. The measures are almost invariably even; for example, one cup means one level cup; one teaspoonful means one level teaspoonful; one scant cup means one tablespoonful less than a cup; one generous cup means one tablespoonful more than a cup. Eggs vary so much in size that it is practically impossible to be exact in a recipe which calls for a certain number of eggs, consequently the following recipes generally give eggs by measure, instead of by number.

In order to eliminate luck from cookery, the worker must be exact in her measurements, as well as careful in the preparation and baking of any dish. Materials differ in strength and quality, and for this reason a little judgment is needed in making any dish; but the fact that these formulae have all been thoroughly tested, and many of them have been used by large classes in the schoolroom, leads to the belief that even the amateur will find them reliable. One cup, as used in the formulae, means one-half pint; but it does not follow that, in order to be exact in her measurements, each woman must possess a graduated measuring cup. It is easier to use, and costs little; but knowing that, in these recipes, sixteen tablespoonfuls equal one cup, it is an easy matter to put sixteen tablespoonfuls of water into a glass (be sure that the spoons are just full,—neither under full nor running over), and hunt among your dishes until you find a glass

or cup which will be just filled level full by this process. Then keep that one always for measuring purposes. Remember that success depends upon accuracy of measurement. At home, the one cup, with a teaspoon and tablespoon, is all that is necessary; but in school work, by some methods of teaching, one needs to divide a recipe into tablespoonfuls. The following table is given to aid in this work:



Measuring Dry Materials.

MEASURES.

Four teaspoonfuls equal one tablespoonful.
Sixteen tablespoonfuls of liquid equal one cup.
Twelve tablespoonfuls of dry material equal one cup.
Four cups equal one quart.
The juice of one lemon means one-fourth of a cup.

MEASURES AND WEIGHTS.

One pint of butter (packed) equals one pound.
One quart of flour (packed) equals one pound.
One pint of granulated sugar equals one pound.
One pint of chopped meat (packed) equals one pound.
One pint and two-thirds of a cup of powdered sugar equals one pound.
One pint and two-thirds of a cup of brown sugar equals one pound.

One pint and two-thirds of a cup of oatmeal equals one pound.
One quart and three-fourths of a cup of rolled oats equals one pound.

For school work, it is absolutely necessary to have the graduated cups. It is wise, also, to have a number of timbale molds, which can be had for a little; and as they can be gotten in a size that holds just one-fourth of a cup, they aid much in securing accurate measurement by those in class who cannot measure by the eye, for anyone can smooth a substance off with a knife, and have it always measure the same.

In class work, it is well (for beginners) to use the small-sized timbale molds. Make your recipes so that even measures can be used; then for one-fourth of a cup the students can smooth the material in the little cups off even with the top of the measure by using a kitchen knife; for half a cup they can take two of the measures; for three-fourths, three, etc. Have them empty the contents each time into their half-pint measure. After three months' work (twenty-four lessons), take the small cups away, and let those who succeed with the half-pint cup continue using it; let the others go back to the use of small cups again, and they will be somewhat chagrined, and use their powers of observation to such purpose that they will soon succeed in developing some judgment in the matter of measuring.

PICKING UP AND WASHING DISHES.

(1) Put away food.
(2) Gather teaspoons and put in a small pitcher.
(3) Gather up glasses.
(4) Gather up cups.
(5) Gather up saucers.
(6) Gather up pitchers.
(7) Gather up knives, forks, and tablespoons, and put in a pitcher of water.
(8) Gather the cleanest plates, or the sauce plates.

(9) Gather the dinner plates.

(10) Gather the butter plates.

Scrape all the fragments into a refuse pail as the dishes are picked up. Arrange dishes conveniently on the table where they are to be washed. When washing glassware of any kind, dip in such a way that water will enter inside and outside at same time, and it will be less liable to break them.

Have a dishpan with plenty of clean, hot, soapy water. Wash first the glasses, drain, and wipe on a clean, dry cloth, as they have thus a better polish. Cut glass should be cleaned with sawdust and a clean brush before washing. Next wash the silver, then the tinware, drying each

Household Scales.

immediately while still hot. Throw that water out, if dirty, and with clean, hot soapsuds wash first the cups, drain, scald, and wipe, or drain, if you have room to stand them up where the air can pass about them, and put away unwiped. Treat all other china in the same way, washing the cleanest first. If the washing water is not hot, the change of temperature may cause the china to crackle. Avoid putting the handles of steel knives, or the tops of egg beaters, in the water, as the handles may come

off from the knives, and the egg beaters may refuse to turn, or may scatter oil when used.

CLEANING SILVER, GLASS, ETC.

When the water bottle or glass pitcher becomes discolored, soak in ammonia water, or in water with a little baking soda, and rub the spots with baking soda. Alcohol is better than ammonia to moisten the whiting for cleaning silver, because the ammonia is apt to dissolve off a portion of the silver. Better use whiting or powdered chalk than many of the silver polishes, as the silver is injured less. To remove egg stains from silver, rub with salt on a moist cloth. Whiting, or very fine sand, with a neutral soap, is good for cleaning tinware. To prevent iron utensils rusting while not in use, coat with kerosene and lamp-black.

The cloth that the dishes are washed with should never be left wet or hung under the sink, but should be rinsed out and dried at once,—in the sunshine, if possible. Once a week it should be boiled in soapsuds after washing well, and then dried.

For tea towels, linen crash is probably the best, because it absorbs water well, and is easily laundered. But muslin flour sacks, hemmed, will serve the purpose very well if laundered each week before too much soiled. The cloths for wiping ironware, such as kettles, bread pans, etc., should be made of crash, because it is so difficult to wash the stains from them. The iron must be wiped, because, if left to dry on the range, it may become rough. There should be cloths of some soft material for lifting things about the range. When an iron or granite ware kettle has had something burned in it, it should have some water and a little washing soda or concentrated lye put into it, and be allowed to stand where it will keep warm for a while, then the water should be poured off, and the burned portion of the kettle scraped with an oys-

ter shell, a wire dish washer, or something of the kind. It should then be rinsed with clear water, washed and rubbed with a cloth on which a little sapolio has been placed by rubbing the cloth over the cake.

To prevent omelet pans sticking, rub with salt. When onions or cabbage have been cooked in a kettle, it should be filled with water after washing, and a little washing soda or lye added and allowed to boil, and afterwards washed well and wiped. This will remove odor.

Wooden articles should be soaked with water as little as possible in washing, and dried in a gentle heat. If placed near the fire they are very apt to crack.

Steel knives and forks should be cleaned with brick dust after each meal. The cut surface of a raw potato is a good thing to rub them with, as it keeps constantly moist. A piece of cork is also good. After scouring, wash in soapsuds and wipe dry.

The garbage pail should be washed after each meal, and scrubbed each laundry day.

TO CLEAN THE SINK.

Wash with hot water in a dishpan and a brush, being certain that every groove is reached. Pour the water from the dishpan into the sink, and let it drain out. Fill the pan again with hot water, and again wash the sink, and wipe dry, if it is not to be used again soon. The sink should be flushed three times a week with boiling salsoda water, made in the proportion of one pint of salsoda to three gallons of water. Use at least two quarts of the hot salsoda water each time, allowing it to run boiling hot down the pipe, and pour clear boiling water in at once when the other disappears. If the sink becomes rusty, rub well with unsalted fat on the bottom and sides, and allow it to stay on over night, or several hours; then wash it off with hot soapsuds, and wipe the sink dry,

TO CLEAN THE REFRIGERATOR.

Wash shelves and bottom of refrigerator once a week with clear warm water, and wipe dry, if shelves are not movable. If shelves can be moved, take them out, and wash with soapsuds, and scald, and wipe dry. When cool, return to their places. In every case see that crevices are thoroughly cleaned. Once in two weeks take ice all out, and wash ice chest well; also clean waste pipe by probing with a white cloth tied onto the end of a stick that is certain not to break,—a piece of an old whip stock is good.

CHAPTER III.

METHODS OF COOKING.

Methods of cooking may be divided into four general classes,—broiling, boiling, baking, and frying.

Broiling	Broiling over coals. Pan broiling. Oven broiling.	Boiling	Boiling proper. Steaming. Stewing.
Baking	Baking. Roasting.	Frying	Frying in deep fat. Sauteing.

In broiling, an article of food is subjected to radiant heat, which usually reaches the article being cooked, from one side only. In broiling proper, this heat comes from a bed of glowing, smokeless coals, and the article to be cooked is supported by a few wires. In pan broiling, the heat is conducted by a hot metal surface, as a hot griddle, and the article to be cooked lies on the radiating surface. In oven broiling, the medium is hot air, and the process differs from baking only in having much more intense heat, as the article to be cooked is thin, and requires an intense heat, because it must be cooked quickly, and be served while still juicy and hot.

When food is boiled, it is enveloped in hot water. In some cases, the water should boil rapidly all the time, as in cooking potatoes, carrots, etc. In other cases, it should not bubble at all, but be kept near the boiling point. The reason for this is found in the articles on cooking vegetables and meats.

Stewing is a combination of two methods,—boiling and steaming,—only a little water being used, and the article to be cooked placed in a closed vessel with tight-fitting cover, so that the confined steam aids the small amount of hot water in making the food tender.

In steaming, the food is placed above hot water, and the vessel is covered so closely that the steam surrounds the food and cooks it. This is an excellent method of cooking such vegetables as potatoes, parsnips, etc. When foods such as cereals, steamed bread, etc., are cooked in a vessel surrounded by hot water, we call the process steaming, though the steam does not touch the food, but the heat is conducted to it by means of the metal or porcelain vessel containing the article to be cooked.

In baking, the article to be cooked is surrounded by hot air. In roasting, the heating medium is the same.

In frying, the food is surrounded by hot fat. In sauteing, a small quantity of fat is used, and articles which would be tough when fried or broiled are made tender by first browning in the fat, and then subjecting to a long, slow cooking, the spider being closely covered all the time.

Braising might be termed "oven stewing," as a small amount of water is used, and the closely-covered vessel containing the food is kept in the oven while the article cooks.

OBJECT OF COOKING.

The value of food for nutriment depends not only on the amount of nutrients it contains, but also on the amount of these the body can digest and use for its support.

Cooking changes the texture of food, making it in some cases more, and in others less, digestible; hence we should first ascertain whether cooking will improve the flavor and digestibility of the article of food. In general, the digestibility of animal foods is diminished by cooking, and that of vegetables increased, though there are exceptions. Vegetable foods are more difficult of digestion than animal foods, and their preparation is more complicated and thorough. The nutritive substances are inclosed in cells often with thick walls, and hence are

not readily acted upon by the digestive fluids. When vegetables are boiled in water, the contents of the cells expand and burst through these walls. The fragrant and savory substances are set free with the other substances which were imprisoned in the cells, and their astringency and bitterness are tempered. Some of the constituents are dissolved by water, or suffer other changes. Starch, an important ingredient in many vegetable foods, such as potato, wheat, rice, etc., takes up water and assumes the soft pasty condition which is necessary for its transformation into soluble dextrine and sugar, which shows that the cooking of starchy foods is necessary.

The boiling of vegetables may, indeed, be termed a preparatory digestive process. Cells of other plants behave like the starch-bearing potato. The seeds of legumes, such as beans, peas, and lentils, are, in their natural state, difficult of digestion, because their starch granules lie closely packed within the indigestible cell walls. On boiling, the starch swells, the cells burst, and their contents are changed into a pulpy mass,—a very nutritious and digestible dish.

References: Art of Cookery—Ewing—p. 33; Elements of Cookery—Williams & Fisher—pp. 52, 53; The Chemistry of Cookery—Mattieu Williams—pp. 8-12.

CHAPTER IV.

WATER.

Sources of Water.

Water plays a very important part in this world of ours. It is encountered in minerals as a chemical constituent. It enters very largely into the composition of all things of vegetable growth, from the blade of grass to the sturdy oak. Many vegetables, as cabbage, potatoes, celery, lettuce, etc., are composed largely of water. Fruit also contains a large amount of water. The bodies of all animals contain much water. If the water could all be removed from a human body, a very small weight would balance what is left. Since fruits and vegetables, as well as animal foods, are composed so largely of water, a human being takes much water in his food, and this is the same as other water, so far as its work in the body is concerned. Water is taken in also with the air which is breathed. A body composed so largely of water as is that of the human being needs much more water than the food and air supply. Much is needed to enable the body to perform its necessary functions, and the skin must be kept clean to aid the internal organs in their ceaseless and worthy efforts to excrete watery solutions and keep the person in good health.

Nature has supplied this universal solvent very plentifully, and distributed it over much of the earth's surface, and under some portions of it. Water for the nourishment of men and animals is derived largely from rain water stored in cisterns, etc., and from springs, lakes, rivers, and wells. The term "rain water" is applied to the water which reaches us from the clouds, direct, whether in the form of rain, hail, or snow. Rain

water should be allowed to fall a sufficient length of time to wash the dust particles and other impurities from the air, and the smoke and dust from the roof, before it is allowed to enter the cistern. A cistern should be walled with material practically insoluble in water, and well cemented. It should be kept well covered, to prevent the entrance of all impurities.

Rain or melting snow is the usual source of spring water. The water sinks into the earth, and percolates through layer after layer, until it reaches an impervious stratum of rock or clay. There it rests until the accumulation is so great that it must have more room. It then breaks through the soil at some lower level in the form of a spring. Rivers usually have their source in a lake situated among the mountains, or on other high land. These lakes receive the water from the melting snows on the surrounding heights, and from the rainfall, as well as that which seeps through the rocks. When the lake basin can hold no more water, a tiny stream flows out over the lower land, and receives similar streams and large rivers until, when it reaches the sea, there is a large amount of water. Lakes are formed by melting snow and rain, which flow in small streams into a basin having a bottom impervious to water. Wells are artificial openings into underground water, and are of three kinds. Shallow wells from fifteen to fifty feet are dug, and walled with brick or stone. These are fed by surface water, and are often visibily affected by copious rainfall or protracted drouth. Driven wells are deeper, and often pass through a layer of some material which is impervious to water. Artesian wells are sometimes of very great depth, ranging from some hundreds to a few thousand feet deep.

Composition of Water.

Pure water is made up of two gases,—hydrogen and

oxygen,—in the proportion of one part oxygen to two parts hydrogen by volume. It is represented by the symbol "H_2O." Pure water is colorless, tasteless, and odorless. Pure water is never found in nature. Put a clean glass where the rain can fall unobstructed through the air into it during the latter part of a shower, and you will have water as nearly pure as it occurs in nature. Rain water absorbs gases of which the atmosphere is composed,—nitrogen and oxygen and carbon dioxide and a small amount of ammonia. It usually contains dust taken from the air, and may contain small amounts of soluble substances, particles of which were floating in the air. That which flows over the roofs of buildings is likely to contain smoke, in addition to the other impurities. Rain water which flows over or through portions of the earth, as in the formation of rivers, lakes, and springs, takes up something in the form of soluble portions of soils, rocks, and decaying animal and vegetable matter found in its course. Many substances are soluble in water, and food nutrients needed by some plants are found in water, so that water which falls on a mountainous region has a very different composition when it reaches the sea, or an underground river or lake, from what it had when it first reached the earth. Rain water which falls in the latter part of a shower is purer than that which falls in the first part, and the water which falls in winter is purer than that which falls in summer.

Food Value of Water.

Water is not a "nutrient," in the sense in which the word is generally used, but it is indispensable for nourishment, for it is a universal solvent, and a very convenient means of carrying the nutrients to the places where they are needed. It also carries waste products to places of exit, and conveys the surplus heat from the places where it is manufactured to the outside of the body, so that the temperature may be equalized, the blood purified, and

the tissues built up or repaired. The frequent application of water to the outside of the body aids in the work of purification of the body by keeping the pores of the skin open, so that some of the waste products may be freely eliminated.

Perfect purity is not necessary in drinking water, but it should be free from visible particles, and should have no disagreeable taste or smell, either when fresh, or after it has stood for a time in a clean closed vessel. It should contain enough of the gases of the air to prevent its tasting flat, like distilled or long-boiled water. It should contain only a small amount of dissolved mineral matter, and this should not be of a poisonous nature,—as lead from pipes, etc. Water should be free from decaying animal or vegetable matter. Impurities of animal matter or the excreta of animals are usually more dangerous than those of vegetable origin. Water which has more than a trace of such matter is not safe. The purity of water cannot always be judged by its appearance, odor, or taste. Water which is clear and sparkling and tastes well may contain the germs of some dread disease; and water may contain the dead bodies of harmless confervae and crustacea, minute sponges, etc., to such a degree as to cause it to smell bad for a time, without perceptibly injuring the one who drinks of it. If there is any question about the wholesomeness of water, boil it, and let it cool before using. So far as lies in your power, keep the surroundings clean. Pure water is "clean" in every sense of the word. Water in which sodium and magnesium salts are present in such small quantities as not to render it hard is desirable. When the conditions are such that the calcium or magnesium carbonate can be precipitated by continued boiling the water is called "temporary hard" water, because the hardness can be removed by boiling. The carbonate is not readily soluble in pure water, but is soluble in water containing carbon dioxide

gas. Boiling drives the carbon dioxide gas off, and the calcium or magnesium carbonate is precipitated. The incrustation thus formed on the inside of the tea kettle can be removed by setting it out to freeze. When the calcium and magnesium occur as sulphates, they cannot be precipitated by boiling, and the water is known as "permanent hard" water.

A comparatively soft water is considered best for cooking some vegetables, as beans, peas, etc., as the hard water seems to have a less softening effect on them. In cooking some other vegetables, the kind of water used seems to make little difference. Moderately hard water is considered better than very soft water for making tea and coffee, because it dissolves less tannin, and the beverage is thus more wholesome. Soft water is far preferable for cleaning and for all laundry work, as it requires less soap and labor, and gives better results.

Sources of Impurities in Water.

Harmful impurities in rain water may be avoided by preventing the water entering the cistern before the air and the roofs of buildings have been thoroughly washed, and then keeping the cistern covered, to prevent the entrance of leaves, insects, etc.

Spring water necessarily contains some mineral matter —more in calcareous than in silicious regions—which it dissolved as it passed through the soil, and it may have dissolved some animal matter, if any dead carcass or animal excreta lay on the soil over which it passed. It usually contains some vegetable matter, obtained from dead leaves, though organic matter is usually found in small amount in spring water. Lakes which lie high up among the mountains are usually replenished by water which flows over uncultivated lands. Such lakes frequently have rocky bottoms, and are consequently quite free from contamination if they are remote from human habitations, and have an outlet, that they may be purified

by subsidence, and kept fresh by constant change. Lakes which have no outlet contain much mineral matter on account of constant evaporation. Lakes in thickly-settled regions receive much mineral matter and other impurities brought by the streams which flow over cultivated regions. They may also receive garbage, sewage, etc., from cities and towns on their shores.

River water always contains mineral matter, the amount varying under different conditions. A river which has its source on high, uncultivated ground usually has purer water near its source than farther down. Much depends, also, on the formation of the soil through which it flows. It is also different when swollen by heavy and frequent rains than after protracted dryness. River water is very apt to be polluted by decaying animal and vegetable matters, as vegetation on its shores, the bodies of dead animals, as fish, etc. The refuse from factories and the sewage from cities frequently find their way into the near-by river. It sometimes becomes necessary to supply cities with water from a river or lake. In this case, some means of purifying is resorted to, as filtering through beds of sand, etc. Household filters can be had, but unless they are kept scrupulously clean, the water is worse with than without filtering.

The water of wells contains mineral matter dissolved from the soil and rocks through which it passed. Some well waters have much more mineral matter than others; this depends largely on whether the well is situated in a silicious or a calcareous region. Well water is not free from organic impurities, as water carries them long distances through porous soil. Of the three mentioned, artesian wells are least apt to be so contaminated. Shallow wells are the most commonly so polluted. There is more danger from such wells in the village than in the country, for, however cleanly a person may be, he has several neighbors near enough so that a little carelessness on their part may in a few days cause disease germs

to enter the water of a well that has been used for years, and never found unwholesome.

Though there is less danger of pollution in the well water at the farm house, it is far from being free from danger. As the well is merely an opening into this underground lake or river, it will be as surely polluted by solid garbage thrown on the ground to be washed by the rains, and carried through the earth into it, as though it were thrown on its visible surface. The piggery, the barn, the henhouse, etc., are fruitful sources of contamination unless they be well removed and on lower ground. No one would think of throwing the kitchen slops into the well, but they sometimes find their way into it when thrown on the surface of the ground.

References: Johnson's Encyclopedia; Drinking Water and Ice Supplies—Prudden.

CHAPTER V.

VEGETABLES.

What Place Should Vegetables Have in the Diet?

The cereal products and potatoes make up the bulk of the vegetable substance of our diet. There are, however, other vegetables which should be daily used. Some of these cannot be said to have a large amount of nutriment, yet there is something in their cool and crisp natures, their vegetable acids and other constituents, which exert a beneficial effect upon the system. It is said that the early Romans so fully appreciated the use of vegetable foods that they enacted laws compelling their people to combine them freely with meats in their dietaries. If the American people would use vegetables freely with their diet of bread, meat, and potatoes, they would have much more reason to hope for happy and healthy old age.

Lettuce is chief among the salad plants. It has many virtues. It is dainty and delicate; wholesome at any meal, but generally used at dinner. It combines harmoniously with almost any kind of meat. It admits of a number of different dressings, but is almost universally relished, even when dressed in the simplest man-

ner. The leaves of lettuce should never be bruised. The tender leaves brought fresh from the garden should be washed in clean, cold water, and relieved from moisture by tumbling about in a white cloth. It may be served just as it is, allowing each guest to dress it simply with vinegar and salt, or more elaborately, as is preferred.

Endive or winter lettuce is also valuable, because, being more hardy than lettuce proper, it can be had in early spring, when green vegetables are scarce. When exposed to the air, the leaves are more acrid and tough than those of lettuce. It can be bleached so that it is crisp, tender and appetizing. It is dressed and used in the same way as lettuce.

Watercress, that aromatic and pungent herb which grows wild in some localities along the edges of ponds of fresh water, near springs, and upon the banks of small streams,—always where there is plenty of water,—has a very pleasant flavor, and is relished by many. The cultivated varieties are more tender than the wild ones.

Rhubarb, on account of its pleasant flavor and early appearance in the spring, is a welcome visitor. It is ready for use long before any fruit, or even the principal salad plants. It can be used in a variety of ways, so that one does not readily tire of it. When stewed in a very little water and sweetened, it makes a good substitute for fruit sauce. It is very acceptable in pie, and those who have tried it in a shortcake served with whipped cream can give evidence of its merits in this capacity.

There are many plants belonging to the cabbage family,—different kinds of kale, Brussells sprouts, broccoli, cauliflower, etc. A dish of sauerkraut makes a pleasant variety during the long winter months, when vegetables are scarce. This German dish is said to prevent scurvy quite as efficiently as lemon juice or green vegetables.

Crisp, tender cabbage, when finely shredded and dressed for the table raw, is, for many, more wholesome and digestible than cooked cabbage. Young onions are to most people very agreeable and digestible. Celery has a tenderness and delicacy of flavor which, added to the benefit which the system derives from its use, should gain for it a place in every farmer's garden.

There are other vegetables used as salads, but these which are mentioned are all common, and with such a variety there need never be a time during the summer season when one feels the need of anything further in the line of food materials.

Spinach is an early spring vegetable, and makes a fine dish of greens.

All vegetables lose something either in flavor or constituents, or both, by cooking. White beans are easily had for winter use, and are a food rich in the flesh forming elements. Dry beans, like cereals, seem to benefit the person eating them very little unless thoroughly cooked. Twelve to twenty hours' cooking is necessary to render them the most palatable and digestible; but as the fire seldom goes out in the kitchen range during winter, their preparation requires little extra time or attention. The small white kidney bean is best, on account of its thin skin and fine flavor. There are several reasons for the long, slow cooking necessary in dry beans, peas, and lentils. One is to soften the paper-like membrane in which each nutritive particle is bound up. Another is to so soften and change the proteid matter as to render it more palatable and more easily acted on by the digestive fluids. Another reason for long cooking is that the legume softens and is penetrated by the seasonings used, which renders it more palatable. Split peas have the outside skin removed and are for this reason easier made use of by those who are disturbed by the skins of legumes. All legumes may be passed through a sieve to free from skins, as in making

purees. Some beans may be soaked until the skins can be rubbed off between the hands.

In seasoning cooked vegetables, our object is to emphasize and bring out delicate flavors, and tone down such flavors as are too prominent. A little cream adds much to the flavor of some vegetables.

Green corn is a universal favorite, and is very generally used in its season. It has no further need of seasoning than to bring out the delicious flavor, and this can be best done by steaming.

Some green vegetables can be dried for winter use and be as palatable as when canned. The process of drying requires little, if any, more time or labor than does canning.

To Dry Corn.

Pick it when just in prime condition for roasting ears, husk, silk, and remove from the cob the same as for cooking. Dry in a current of air as quickly as possible, tie up in a bag and keep in a dry place.

To Dry String Beans.

Gather them when just right for present use, string, and prepare as for cooking. Spread in a shady place where the air circultes freely, and, when dry, treat in the same manner as corn.

REMARKS.

Use each vegetable very often while it is in season. Asparagus seldom lasts long enough for the family to tire of it. Peas are always welcome, especially if cream is used in dressing them. Peas are sweeter when the pods are washed and boiled until soft, then skimmed out, and the peas cooked in the water. Most people will welcome tomatoes in some form once a day during the entire summer.

For cooking some vegetables, use a kettle having a

tight-fitting cover. Food will cook in a less amount of water when the steam is confined within the vessel than when the medium for cooking must be hot water entirely.

Most vegetables may be steamed instead of boiled if one has utensils for so cooking.

The kettle in which potatoes are cooked should be used for nothing else, if one wishes potatoes to be as white as possible.

In all vegetables, aim to have the water mostly cooked out, unless the flavor is too great, and you parboil the vegetable.

In cooking some vegetables, such as carrots, cabbage, and parsnips, the water in which they are cooked need not be thrown away.

While stewing is usually done in a small quantity of water, there are exceptions to this rule, as carrots, beans, onions, turnips, and some other highly-flavored vegetables are improved in flavor by parboiling and draining. Much of the nutritive part of the vegetable is sacrificed in thus obtaining the best flavor. It is undoubtedly better to use little water in the cooking, and tone the flavor by using an appropriate dressing.

Frozen Vegetables.

Are, at best, inferior, but when it is necessary to use such, soak them in cold water until thawed before preparing for use. Then put to cook in boiling water, and cook rapidly until done.

References: U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 43, pp. 7-8, 13; Food Products of the World—Green—pp. 158-161, 196-199; Farmers' Bulletin No. 121; Minnesota Bulletin No. 54, pp. 58-61; Parloa's Kitchen Companion, pp. 490-492.

STEAMING, BAKING AND BOILING VEGETABLES.

Effect of Cooking on Food Value of Potatoes.

The following conclusions are taken from Minnesota Experiment Station Bulletin No. 43:

"(1) In order to obtain the highest food value, potatoes should not be peeled before cooking.

"(2) When potatoes are pared before cooking, the least loss is sustained by putting them directly into hot water, and boiling as rapidly as possible. Even then the loss is very considerable.

"(3) If potatoes are pared and soaked in cold water before boiling, the loss of nutrients is very great, being one-fourth of all the albuminoid matter. In a bushel of potatoes, the loss would be equivalent to a pound of sirloin steak."

Plain Boiled Potatoes.

Select potatoes of uniform size. Wash clean in cold water, using a vegetable brush. Rinse and pare, removing a thin paring, and taking out the eyes, if necessary. As soon as pared, rinse in clear water, and put to cook in such a quantity of boiling salted water that it will be nearly boiled away when the potatoes are soft. Drain off the water which remains, remove to the back of range, throw a white cloth over the potatoes to absorb the moisture, and they are ready to serve. A medium-sized potato will cook in about twenty-five minutes. To cook

potatoes in their skins, follow the same method. Potatoes which are pared before cooking will give the whitest and nicest-looking mashed potatoes, but they have less food value than those pared after cooking. Potatoes are as nice steamed as boiled and probably have greater food value.

Emergency Potatoes.

Select potatoes with a smooth skin and of medium size, scrub them, cover with boiling water, and let boil about ten minutes, drain off the water and put potatoes to bake. They will then bake quicker, and be almost as good, as when wholly cooked in the oven.

Baked Potatoes.

Select and wash as above. Put to bake on the bottom of a clean, moderately hot oven., When done, take each potato in a cloth, and squeeze until it breaks a little, allowing the steam to escape, or pierce each with a skewer or fork. Serve at once.

Baked Sweet Potatoes.

Prepare and bake as white potatoes. Serve as soon as done, as they become soggy if allowed to stand.

Browned Sweet Potatoes.

Pare cold baked or boiled sweet potatoes, and pour over them a mixture of water, sugar and butter, using one-quarter cup of water and one tablespoonful of sugar and one of butter for three potatoes cut in half lengthwise. Bake until browned.

Mashed Potatoes.

Wash, pare, and remove imperfect parts from potatoes, and put to steam, or put to cook in a small amount of boiling water, allowing one teaspoonful of salt to each pint of water, and boil rapidly until done.

Do not allow pared potatoes to stand in cold water, as this detracts from the food value. When the potatoes

are soft, mash fine. A wooden masher is best for this, and a wire one is best for stirring. Measure the quantity of potatoes by the eye, and for each pint add half a teaspoonful of salt, a little pepper, hot milk to moisten, and butter enough to give a good flavor, then stir and beat with wire masher until light and creamy white. Use cream instead of milk and butter if you have it.

Riced Potatoes.

After the potatoes are mashed, seasoned, and beaten, press through a potato ricer into the serving dish.

Creamed Potatoes.

Cut cold boiled potatoes into thin slices. Put them in a small shallow pan, cover with sweet milk and cook until the potatoes have absorbed all of the milk. To one pint of potatoes add one tablespoonful of butter, half a teaspoonful of salt and one-eighth teaspoonful of pepper, and a little chopped parsley. Put the salt into the milk before pouring over the potatoes.

To Cook Carrots.

When carrots are to be cooked, have on the range, boiling in the kettle, such an amount of slightly salted water as in your opinion will allow the carrots to barely cook until tender without burning. The exact quantity of water cannot be given, as it evaporates more rapidly some days than others. Put the carrots in whole, or as nearly so as the kettle will permit. Keep them boiling rapidly until tender. Remove the carrots from the kettle, and with a sharp knife divide each through the centre. For each half pint of liquid in the kettle, measure out a level tablespoonful of flour, and the same of butter. Stir these together in a cup until thoroughly mixed, then put into the boiling liquid in a lump, and stir until the flour is cooked, and the liquid smooth and thickened a little. Then season to taste with salt and pepper, and add a sufficient amount of vinegar to make

it slightly acid. Return carrots to the kettle, let boil and serve. Better steam carrots than boil them when possible.

Carrots in White Sauce.

Put into a saucepan one level tablespoonful of flour, and the same of butter. Let butter melt, and stir the two together, but do not brown. Then add one cup of sweet milk, and let boil a few minutes. After it actually boils, season with salt and pepper, add one heaping teaspoonful of parsley, stir up, pour over the carrots, and serve.

Sauces for Carrots.

Sauce No. 1: Measure one level tablespoonful of flour and one of butter for each cup of milk or carrot broth used. Stir these together in a cup until perfectly mixed, then put on the end of a wooden spoon, and put into the boiling liquid, and stir until well cooked and smooth. Season with salt and pepper, pour over the carrots and serve.

Sauce No. 2: If there is not liquid enough from the carrots to make the sauce, put in enough rich milk to make the required amount, thicken in the same manner as before, season, and serve.

Sauce No. 3: Put in enough beef broth to make the required amount of liquid, thicken in the same way, put one tablespoonful of vinegar to each cup of liquid, season, and serve. If the vinegar is very sharp, use less.

Prof. Harry Snyder gives the following conclusions from his experiments with carrots:

"These trials suggest that, in order to retain the greatest amount of nutrients in the cooking of carrots, (1) the pieces should be large, rather than small; (2) the boiling should be rapid, in order to give less time for the solvent action of the water to act upon the food ingredients; (3) as little water as possible should be used; and (4) if the matter extracted be used as food along

with the carrots, instead of being thrown away, the loss of twenty to thirty per cent., or even more, of the total food value may be prevented."

To Cook Asparagus.

Break off the woody ends, wash and tie the asparagus in bunches of suitable size, cook in a small amount of salted boiling water, and season as peas, or serve with Hollandaise Sauce. May steam instead of boiling it.

To Cook Cabbage.

Cabbage may be cooked in very little water, and to most persons is even more palatable than when cooked in a large quantity of water. To cook cabbage in this way, cut into moderately small pieces, and put to cook in a closely covered vessel containing just boiling water enough to prevent burning. When boiling rapidly, draw to a cooler portion of the range, and let cook slowly until tender. Season with salt, pepper, and butter, and serve. Cabbage will be cooked by steaming in about the same length of time as by boiling.

Boiled Cabbage.

Trim off the outside leaves, cut each head into eighths, and put into the kettle with a small amount of boiling salted water. Cook until tender, keeping just water enough to prevent burning. When tender, remove to the back of the range to keep warm, until ready to serve, then prepare White Sauce No. 1 and pour over it.

Hot Slaw No. 1.

Cut the cabbage fine, cook in very little water until tender, and when ready to serve add to one egg beaten very light one tablespoonful of sugar, one-half cup of hot vinegar, and lastly two tablespoonfuls of cream. Season with salt and pepper, pour over the cabbage, stir, and serve at once.

Hot Slaw No. 2.

Cook cabbage same as in No. 1, season with salt, pepper and butter and add enough vinegar to make pleasantly acid.

The following is from U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 43:

"The kind of water used seems to have more effect on the loss of nutrients in cooking cabbage than the temperature of the water at which the cooking is started. In any case the loss is large. In one hundred pounds of uncooked cabbage, there are but seven and one-half pounds of dry matter, and of this dry matter from two and one-fourth to three pounds are lost in the process of cooking." Cabbage loses much in cooking, because, being leaves, the water has access to a large surface. There seems no way to avoid great loss in food value, except to use little water in cooking, and cook the water out, or make a sauce of it.

Creamed Cabbage.

Cut the cabbage into medium fine pieces and steam or cook in little water until tender, then pour over it a seasoned white sauce.

White Sauce No. 1.

Put into a saucepan two level tablespoonfuls of butter and the same of flour. Heat until the butter melts, and mix thoroughly together, but do not allow it to brown. Pour into this, all at once, one cup of milk. Let cook until it thickens, and ceases to taste of raw flour, season with salt and pepper, pour over the cabbage, and serve.

Some find cabbage more palatable when as much water as possible is removed before pouring the sauce over it. Cabbage may be served with Hollandaise Sauce.

Hollandaise Sauce No. 1.

Pour one cup of White Sauce No. 1, boiling hot, over a beaten egg, pouring slowly, and beating rapidly. Add

one tablespoonful of vinegar or lemon juice. Put over the fire and heat until the egg cooks a little, but do not allow it to curdle. Season and serve.

Hollandaise Sauce No. 2.

Cook together, until well mixed, one tablespoonful each of butter and flour. Add one cup of thin cream, and bring to the boiling point. While boiling, stir in the well-beaten yolks of three eggs, in which has been put one tablespoonful of vinegar or lemon juice. Add egg slowly, and continue cooking, after egg is in, about one minute. Remove from fire, add seasoning, also one tablespoonful of butter, and the egg whites, beaten stiff.

To Cook Beets.

Scrub the beets well, but be careful that the skin is unbroken and the top left on, because they will lose their beautiful color, as well as have less food value, if broken. Cook in boiling water until tender, put into cold water and rub off the skin. Cut in slices and serve hot. Season with salt, pepper, and butter, or pickle and serve cold.

To Cook Parsnips.

Prepare and cook in the same manner as carrots, and serve with a sauce made of the water in which they are cooked. Or, when tender, pour into a dripping pan, and set in the oven. When the water has evaporated, brush the parsnips over with butter, and let brown. Or they may be cooked dry, and mashed, as potatoes, and seasoned with salt, pepper, and butter.

To Cook Celery.

Scrub with a vegetable brush to remove all dirt from the creases. Cut in half-inch lengths, and cook in a little boiling salted water, or steam. When tender, serve with White Sauce No. 1.

To Cook Onions.

Peel the onions and put to cook in a small quantity of water (boiling and salted) until tender, then serve with White Sauce No. 1.

Smothered Onions.

Peel and put into a covered baking dish, and bake until tender; then season with salt and pepper, and add one tablespoonful of cream to each onion. Let cook fifteen minutes longer, and serve. Or, put the onions to cook in a buttered baking dish, season with salt and pepper, and baste occasionally with butter while they cook. When tender, remove the cover, allow the onions to brown, and serve.

Onions Cooked with Milk.

Boil in plenty of salted water until about half done, then drain the water off, and cover with milk, cook until done, and season with salt and pepper to taste.

To Cook Peas.

Shell the peas, wash the pods, and put pods to cook in a sufficient amount of water to cook the peas. When the pods are soft, skim them out and put the peas to cook. Keep just water enough to prevent burning, and when done season with salt, pepper, and sweet cream.

To Cook String Beans.

Break off both ends of the pod, and break what is left into two or three parts. Put to cook in sufficient boiling water to keep them cooking three or four hours. Put a piece of salt pork in the bottom of the kettle. Season, when done, with salt and pepper. Let the water practically all cook out. A little cream may be added, or they may be served with a white sauce.

To Cook Tomatoes.

Lay ripe tomatoes in a pan, stem side up, and cover with boiling water, let stand an instant, drain off the hot water, and put cold water on them. Remove the skins, take out the cores, cut the tomatoes in pieces, and put to cook in a granite ware or porcelain kettle, and cook until well done. Season with salt, pepper, and butter, and add bread or cracker crumbs.

Or make White Sauce No. 1, and mix with the tomato by first putting a little of the tomato into the sauce, then pouring this into the kettle of tomatoes; stir well together and serve.

To Cook Turnips.

Choose turnips of medium size, pare, cut in halves, and cook until tender in a small amount of boiling salted water. Allow the water to evaporate, mash the turnips, and add salt, pepper, butter, and a very little sugar. Or cut into small cubes before cooking, boil in mutton broth, and serve with boiled mutton.

To Cook Spinach.

Look the spinach over, and remove all dead leaves and roots. Set a colander in a pan of water, put the spinach in it, and in this way wash it through several waters to remove all particles of sand or dirt. Put in a kettle on a cool part of the stove with no more water than clings to it. Let cook until tender, season with salt, pepper, and butter, and serve. Boiled eggs, sliced, may be served with it.

To Cook Hubbard Squash.

The hard shell should be broken in pieces, and the seeds scraped out. First wash the outside of the squash and wipe before breaking. Steam the pieces until done, then take out the inside with a spoon, mash, and season with salt, pepper, and butter. Or break into

pieces suitable for serving, and bake the squash in the oven, sprinkling salt and pepper over it when put to cook, and serve in the shell.

Summer Squash.

Use while very young and tender. Wash clean, cut in slices, stew in very little water, and mash and season with salt, pepper, and butter. Many saute same as egg plant.

Green Corn.

Remove husks and silks, and steam the corn, or cook in just enough boiling water to keep from burning, and serve on the ear. Corn may be cooked in the husk by leaving the fine inner covering, but there is no perceptible difference in the quality.

To Stew Green Corn.

Remove husks and silks, and score each row of grains down the center with a sharp knife. Cut off a thin slice from the top of the grains, and with a kitchen knife scrape out the contents. Cook in a small quantity of salted water, letting cook gently, keeping covered, and stirring occasionally. When done, season with salt, pepper, and butter. Cream is better than butter if you have it.

Or, the corn may be partly cooked on the cob, cut off, seasoned with salt, pepper, cream, and a very little butter heated to the boiling point, and served.

To Steam Rice.

Put over the fire in a double boiler three cups of milk or water, or of the two mixed. Put into it one teaspoonful of salt. Look over one cup of rice, wash, put into the boiling liquid and cook, covered, without stirring, until the grains of rice are so soft as to be easily crushed between the thumb and finger. Take the cover off and let the rice dry a little. The grains will be distinct, and the rice palatable.

To Cook Rice in Water.

Put in a saucepan over the fire ten cups of water, adding a tablespoonful of salt. When the liquid boils, put a cup of rice in. Let boil until soft, as before. Keep the quantity of water the same by adding boiling water as it evaporates. Drain in a puree sieve, and dry it off on the range shelf. Rice cooked in this way is very white, fluffy, and beautiful, but less nutritious and palatable than when cooked the other way.

Stuffed Tomatoes.

Wash and wipe medium-sized, firm, ripe tomatoes. Cut off a slice from the stem end, and with a spoon take out some of the seeds, but not the core. Fill the cavities with bread crumbs seasoned with butter, pepper, and salt. Replace the slice on the top, place in a pan, and bake fifteen or twenty minutes. Serve hot.

Escalloped Tomatoes.

Select perfect, ripe tomatoes. Put in a pan, pour on enough boiling water to cover them, and let stand one minute. Pour off the hot water, cover with cold water, and remove the skins. Butter a baking dish on the bottom and sides. Cover the bottom of the dish with bread crumbs made from crusts dried and rolled or ground. Slice the tomatoes one-half an inch thick, and lay over the crumbs. Cover the tomatoes with crumbs, sprinkle with salt and pepper, and drop on bits of butter. Add another layer of tomatoes, another of bread crumbs, butter and seasoning; continue in this manner until the dish is filled to within two inches of the top. Have bread crumbs on the top. Place in the oven and bake twenty or twenty-five minutes. Serve in the dish in which they are baked.

Sauted Tomatoes.

Select firm tomatoes, not over ripe, wash and wipe. Cut a medium-sized tomato into four slices, dredge with

flour, saute in a hot spider containing one tablesponful of butter. Brown on one side, turn, and brown on the other. Remove to a warm platter, and sprinkle with salt and pepper. Into the spider put one-fourth cup of cream, let boil up, turn over the tomatoes, and serve. The slices of tomato may be dipped in beaten egg and dusted with very fine bread crumbs, before sauteing.

Escalloped Macaroni with Tomatoes.

Look the macaroni over carefully, and see that it is free from insects. Break into inch or two-inch lengths, and put to cook in plenty of salted boiling water. Cook rapidly until done. When done, it is clear and soft. Turn into a colander and allow it to drain. Cover the bottom of a baking dish with bread crumbs, put in about one inch of macaroni, over this lay sliced tomatoes, and sprinkle lightly with seasoned bread crumbs. Then add another layer of the macaroni, another of tomatoes, and a dust of crumbs. Continue in this manner until the pan is as full as desired, having tomatoes on top. Cover with a layer of the seasoned crumbs one-half inch thick. Bake until the crumbs are a nice brown,—twenty or twenty-five minutes,—and serve in the dish in which it is baked.

To Cook Salsify or Vegetable Oysters.

Wash the roots clean, and remove rootlets. Scrape the thin skin off, and keep the roots in vinegar water, as they discolor very readily. Cut into bits, and cook one and one-half hours in boiling salted water. Keep just enough water to prevent burning. Season same as peas. Salt, pepper, and cream give best results, but it is good served with White Sauce No. 1.

Corn Oysters.

Select roasting-ear corn, and prepare for cooking. Score each row of grains, then with a sharp knife cut off the top of each row about one-third down, and with a kitchen knife scrape out the pulp. With each cup of

corn mix one tablespoonful of flour, one-half a teaspoonful of salt, and one tablespoonful of cream. Lastly, fold in one egg white, beaten very light. Drop one tablespoonful at a time on a greased griddle, and bake same as griddle cakes. These are fine if one-third as much sweet-bread as corn is used. To make corn oysters from left-over corn, grate the roasting ears which have been left from dinner, then proceed as with fresh corn.

To Cook Egg Plant.

Pare the egg plant and cut into slices one-fourth of an inch thick, and sprinkle with salt and pepper. Dip the slices in beaten egg, then in fine bread crumbs, and saute in a spider with plenty of bacon fat or clarified butter. Brown on both sides. Or the slices may be simply dusted with flour. If, when the slices are brown, they do not seem perfectly cooked, draw the spider to a cooler part of the stove and finish cooking.

Egg plant is also very nice dipped in a fritter batter and sauted.

Baked Egg Plant.

Prepare the egg plant as for sauteing, cook in salted water for ten minutes, and drain. In a greased baking dish put first a layer of seasoned bread crumbs, then a layer of the egg plant, more crumbs and bits of butter, more egg plant, and so continue until as much is used as desired, having crumbs on the top. Bake twenty minutes in a moderate oven.

Egg-Plant Oysters.

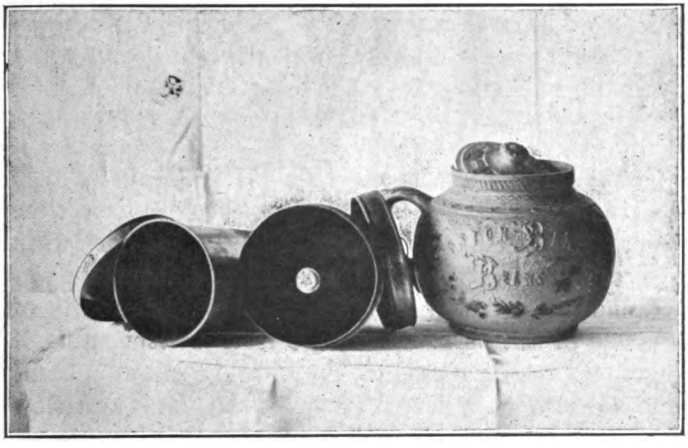
Prepare and cook the plant as for baking. When soft, drain and mash through a sieve. To one-half pint of egg plant use one egg, well beaten, two tablespoonfuls of milk, one-fourth cup of flour, and one-half as much bread or cracker crumbs as flour. Season with salt and pepper and saute or bake as griddle cakes.

DRIED VEGETABLES.

All dried vegetables should be looked over, washed, and put to soak in cold water, and left until they absorb all the water they will, or at least for several hours, then cooked in the water in which soaked. Some prefer to throw away the water in which dried vegetables are soaked, and thus have a milder flavor. Such treatment takes away a portion of the food value, and whether it is advisable to do so each person must decide for herself.

Dessicated beans or shredded string beans are sometimes included in army supplies.

Some vegetables, as string beans, cucumbers, and cabbage, may be preserved in salt or in vinegar for winter use.



Bean Pot and Brown Bread Tins.

String beans preserved in salt will keep for months, but they undergo a change similar to that produced in cabbage when sauerkraut is made. They are much used by some people, and are no doubt a good thing, as they add one more vegetable to the winter diet.

White Beans in Cream.

Look over the desired quantity of dry beans, wash, and

put to soak in cold water to cover them. Let stand over night, or for several hours, until they have absorbed all the water they will take; then put to cook, using the water in which they have soaked, and adding enough boiling water to cover. For each pint of beans used add half a tablespoonful of salt, and one level tablespoonful of sugar. Set the bean jar in the oven and cover. Let the beans cook until soft, but not dark. When done, make a white sauce by using one tablespoonful of butter and one of flour to each cup of milk (as directed for making White Sauce No. 1). When the sauce is smooth, season to taste, and pour over the beans.

Stewed Beans.

Proceed in same way as for white beans in cream, except cook a piece of salt pork with the beans. Let water nearly all cook out, season, and serve.

Baked Beans.

Beans one pint. Soak over night in plenty of cold water, and put to cook in cold water enough to cover the beans. Add one-half tablespoonful of salt, and one-fourth of a teaspoonful of soda. When boiling, drain off the water, and in the bottom of the bean jar put one-fourth of a pound of salt pork, scored, two level tablespoonfuls of sugar, and one-half scant tablespoonful of salt. Put beans into the jar, cover them with hot water, cook in a slow oven for ten, twelve, or fifteen hours.

Prepare and bake lentils same as beans.

Lentil Pudding.

Prepare the lentils, and soak as before, then slowly steam them until done. Cook a piece of salt pork with them for seasoning, or season with butter.

Cereal Grains.

CHAPTER VI.

PREPARED CEREALS.

Cereal foods are made of the farinaceous (meaning floury) seeds of plants belonging to the grass family, and in some instances, doubtless, in part, of the seeds of such leguminous plants as peas and beans. These valuable grain-bearing plants were, probably, among the first to furnish food to the human race.

Pliny speaks of wheat, in writing of the ancient Roman people. China has history of the use of cereal grains as early as 2,700 years before the Christian era. And there is evidence that the lake dwellers of prehistoric Switzerland used seeds of millet as food. In America the natives were using corn when white men came to the western world, and the evidence seems complete that the ancient Cliff Dwellers of the Mexican and the southern part of America used corn as food. The American Indians residing in the north used large quantities of wild rice or Indian rice for food. All the cereal grains now largely used, excepting maize, have been in use in the Eastern hemisphere since ancient times.

While the culture of the cereal grains had made some progress throughout the preceding centuries, the greatest advance along this line has come within the past century. The machinery for cultivating and transporting cereal grains, and products made from them, has made most wonderful strides during the lives of the present generation. Processes in the manufacture of cereal foods from cereal grains form one of the marvels of modern progress. And the rate of this progress seems to be accelerated as each year's experience is added to the last.

It is not long since our ancestors had only the crudest means of grinding grains, and no thought occurred to them of pearling and mixing, and partially cooking and flavoring, and otherwise preparing these foods into the many forms now found on our markets.

Our grandmothers were pleased with the simple straight flour from which the coarsest bran had been removed. They took great comfort in the bolted cornmeal and the oatmeal which was used only occasionally by others than the Scotch. These foods, together with rice and hominy, made up the list of cereal preparations. Now we have our wheat flour graded so that we have patent flour for bread, pastry flour for pastry uses, and various brands for special purposes. Instead of the uneven sample of flour furnished to the farmer with toll retained by the old time burr mill in return for his grist of wheat, we now have the uniform patent flour made every day the same by the modern roller mill with its wonderful machinery. We have also not only cornmeal which is better bolted and more uniformly ground, and oatmeal of finer quality, but we have dozens of other more or less popular meals and flours, and cracked and polished grains, which we have come to know as "cereals."

America's rich soil, energetic people, favorable climate, and her mechanical and commercial genius have combined in the production of large amounts of cereal foods. The best varieties of these crops have been gleaned from the whole world, and in many instances they have been improved upon. Here, as in manufacturing, progress seems to be making rapid strides, and bids fair to hold a permanent place. Owing to the fact that farmers can so cheaply produce at home a variety of foods, they have not felt the need of rapidly taking up the use of even the better forms of manufactured cereal foods put upon the markets during the last one or two decades. Doubtless their conservatism in this, as in many other things, has

kept them from enjoying advantages which are within their easy reach. Most cereal foods are economical in that for a given amount of money a large amount of food material is purchased. They are healthful in that they lessen the tendency to eating too much meat, and they furnish all the elements needed to nourish the body. They have bulk enough to give the digestive organs their needed amount of muscular exercise, yet they rarely cause indigestion.

Cereal foods tend to good morals, since, when they form a goodly portion of the daily food, there is no excessive stimulant to the body, nerves, or mind. They are sufficiently bulky so that there is little tendency to overeating, and thus overloading the system with an excess of flesh formers, heat formers, or ash which must be carried out, requiring excessive labor on the part of the excretory organs. These foods are very appetizing, and since many of them are especially relished when eaten with cream, which is nowhere so abundant and inexpensive as on the farm, no class of people should appreciate them more than farmers.

Manufacturers rival each other in embellishing wrappers and inventing novel names for their wares. Extravagant claims are made for these foods, and much is said to induce the public to believe that, by some peculiar method of manufacture, an article far superior to simple, plain oatmeal or rolled wheat has been produced. The fact is that there is, in most cases, more variation in price than in food value, and the relation between quality and cost is sometimes difficult to discover. The package goods have one merit, and that is, the manufacturer is made directly responsible to the consumer. The oatmeal sold in bulk is practically uniform in composition, and, unless injured by long keeping and exposure, there is little, if any, discoverable difference in quality and flavor. The package cereals usually make greater claims for quick

cooking than can be well substantiated. Granting that, in such cereals, a portion of the starch grains have been crushed and partly converted into more soluble forms by means of heat, pressure, and moisture, thus lessening the time required for cooking, yet experience proves that they usually have a better flavor when cooked half an hour than when removed from the fire after ten minutes' cooking, as the packages sometimes direct. The carbohydrates of cereals are mostly in the form of small, hard, starch grains which are not easily attacked by the digestive fluids. Experiments made in feeding cooked cereals to domestic animals seem to verify the statement that little cooking renders them less digestible than when eaten raw, but a long, slow, thorough cooking brings about good results.

Cellulose is the woody portion of plants. In such foods as spinach, the cellulose is young, tender, and digestible. In grains, the cellulose is found in its mature state, and can hardly be classed as a food stuff for man, yet it plays an important part in giving bulk to the food, and aids in preventing the tendency to too concentrated food. It acts as a mechanical stimulus to promote the peristalsis of the intestines. Bunge, in his Physiological and Pathological Chemistry, says: "While it is urged that the rapid and continual movement of the intestinal contents in consequence of the irritating action of the woody fibre prevents the complete utilization of the food, at the same time," he continues, "it appears to me that the advantages of food containing cellulose far outweigh the drawbacks."

All oily matters in grains are termed "fats." These are similar in composition to carbohydrates, but the fats are poorer in oxygen and richer in carbon and hydrogen; therefore the heat equivalent of fats is much greater,—that is, a pound of fat will produce more animal heat than a pound of starch or sugar. Buckwheat is a good example of a heat-giving cereal. It is more agreeable when

used in cold weather, and by those who exercise freely. It is used principally in the form of griddle cakes, though it is sometimes found in the markets in the form of a specially prepared cereal. Cereals contain a small portion of the several mineral matters which are necessary for both bone and flesh, but there is usually no deficiency of most of these in our diet. Phosphorus is considered of much importance, and special efforts are said to be made to secure it in milling.

One authority on physiological chemistry says that, with the exception of preparations of corn and oats, all the cereal foods lack the fat necessary to a normal diet. The proteids and carbohydrates occur in the proper proportion in them all. Since human beings select their foods largely on account of flavor, why not supply the fat to the foods in the form of cream. A dish of breakfast food which is eaten under protest when served with milk will be relished when cream is used. It is not extravagant, because the cereal costs only a few cents a pound and the willingness with which it is eaten well repays the cost of the cream, which, on the farm, is not expensive. To compensate for the lack of cream in oatmeal and cornmeal mush, a garnish of fruit can sometimes be used. Strawberries, peaches, raspberries, and bananas, each in its fresh state, are considered best for this purpose, as the flavors are sufficiently pronounced so that the two foods, eaten together, are very appetizing.

The manufacture of special cereal foods is taking on a wonderful development. These foods have the well-balanced composition of the cereal grains from which they are made. The staple cereal foods, as wheat flour, cornmeal, and oatmeal are the sources of the cheapest food materials we have. Their large use not only does not endanger health, but also prevents our over-eating of the too rich albuminous foods and sweets. Good bread prevents our eating the less wholesome cakes. Oat-

meal for breakfast aids in avoiding the too free use of meats, and cornmeal mush as a part of the evening meal fills our stomachs with nourishing yet light food, and allows us to have sweet dreams. Especially are these cereal foods a blessing to growing children and to adults during periods of lessened activity, as in winter, when less muscular exertion makes a lighter diet well nigh imperative. Flour, oatmeal, and cornmeal are so cheap as compared with most other forms of food that farmers should exercise great care in securing that of good quality. It is likewise important that these foods be cooked in the most perfect manner. Very many people with diseased digestion are constantly distressed, injured, and made far less able to be happy, to perform work of any kind, or to be useful to others, by eating wheaten bread which is improperly made. Bread made by a slow process, with low temperature, or with the dough now warm, then cold, develops within itself not only a yeast fermentation, but other ferments as well. A mere trace of an acid developed by injurious fermentation, an amount barely sufficient for the taste or the smell to detect, will disturb the digestion of many people in health as well as those having weak digestion. The most important matter in connection with oatmeal is to have it made of sweet and well-flavored grain. It should always be fresh and well cooked. Under such circumstances, it will be palatable, and may be used often and is always relished. Cornmeal should be nicely prepared, and should be properly made into mush, that it may be enjoyed for supper; and a remaining portion fried for breakfast is very acceptable. The fact that farmers have fine milk and cream at first cost is a most favorable circumstance to their using large quantities of cornmeal and oatmeal mush. These foods are often more delicious, and probably more healthful, than many of the modern compounds which require much more labor in their preparation. They

are also very inexpensive, as will be shown further on in these articles.

In order to have good health, people must have food that supplies the quantities of nutrients which the body requires. Yet this is not all that is necessary. The food must be such that the person can digest it, else it does him harm, rather than good.

Experiments in the digestibility of foods lead to the belief that fat as found in pork is difficult of digestion; and when taken in large quantities, a considerable portion of it fails to be utilized in the system, and thus entails unnecessary work on the different organs to remove it, with no benefit to the body.

It would be well, then, to replace a part of the meat with some food which will furnish the necessary ingredients in a more digestible form. The cereals, when properly cooked, are very completely digested and assimilated.

The quantity of protein in cornmeal is small as compared with some other food stuffs, but it is a valuable nutrient because easily digested. The fat of butter and cream is more digestible than that of bacon, owing in part, probably, to the more delicate structure of the cell

	No. of Analysis	Water	Ash	Protein	Carbo-hydrates	FAT
Entire wheat flour	5	12.1	1.2	14.2	70.6	1.9
Roller process flour	100	12.5	.5	11.3	74.6	1.1
Spring wheat flour	19	11.6	.5	11.8	75.0	1.1
Winter wheat flour	13	12.5	.5	10.4	75.6	1.0
Cerealine	1	10.6	.4	9.4	78.6	1.0
Macaroni and vermicelli	25	10.8	3.0	11.7	72.9	1.6
Rex wheat	1	10.4	1.6	11.4	74.5	2.1
Wheatlet	1	10.4	.9	12.3	75.0	1.4
Wheat Farina	2	9.7	.2	11.1	77.6	1.4
Barley meal	3	11.9	2.6	10.5	72.8	2.2
Barley, pearled	2	10.8	1.3	9.3	77.6	1.2
Buckwheat flour	10	14.3	1.4	6.1	77.2	1.0
Cornmeal, bolted	9	12.9	.9	8.9	75.1	2.2
Corn, hominy	5	11.9	.4	8.2	78.9	.6
Corn, pop, raw	4	10.8	1.4	11.2	71.4	5.2
Oatmeal	13	7.2	1.9	15.6	68.0	7.3
Rolled oats	11	7.2	1.9	16.9	66.8	7.2
Rice	13	12.4	.4	7.8	79.	.4
Bakers' bread		32.0	.1	.9	56.	.1

walls in which the fat globules are inclosed, or the absence of such walls. A glance at the preceding table, compiled by Prof. W. O. Atwater, will show that oatmeal has rather more protein than wheat flour.

In comparing wheat bread with wheat flour, we find that the chief difference is that the bread has a larger proportion of water, and a greater amount of fat, owing to the water and milk used in its preparation. As we run down the scale, we find that the cereals prepared from barley rank next to wheat flour in the amount of protein contained. Cornmeal contains more protein than buckwheat flour, and rice ranks lowest in proteid matter. There are many cereals prepared from oats, but coarse oatmeal, fine oatmeal, and rolled oats usually give a satisfactory variety in this cereal. These can all be bought in bulk for two or three cents per pound. They are all cooked in the same manner; the only difference in the process being that the coarser ones require a longer time and a greater proportion of water.

The protein in cereals is in the form of gluten, and is very hard when dry, and needs long cooking. Starch, in a raw or half-cooked state, is neither very palatable nor digestible. Each starch cell is surrounded by a thin wall of cellulose, and this must be softened by the heat and moisture, so that the starch cells may absorb water, distend, and become soft and digestible. Coarse oatmeal requires a very long, slow cooking to thoroughly prepare it for the action of the digestive fluids. It is well to have this for breakfast on the morning following baking or ironing day, as the fire necessary for the extra work can be utilized in partially cooking the cereal for the next morning's breakfast.

Among "cereals" prepared from corn, the good old hominy, a dish borrowed from the Indians, awakens pleasant memories in the minds of those whose youthful palates were tickled by this delicious and wholesome ar-

ticle of food. The coarse hominy of early days, in America, was made by soaking the grains of corn in weak lye made from wood ashes, until the outside covering became loose. The grain was then taken from the liquid and washed in two or three clean waters, and the hulls rubbed off by the hands. It was then soaked in clear water to remove all trace of the lye. When ready, it was boiled in slightly salted water for some hours, until it became perfectly tender. By placing it out in the pure cold air, and allowing it to freeze, the hominy was thought to be improved, as it was more tender, and slightly changed in taste. It was eaten with milk or sauted in butter or meat drippings. This method of preparing it was very simple. A spider containing a generous supply of whatever fat was to be used for cooking the hominy was placed upon the stove and allowed to become hot. Then the hominy, free from water, was put in and stirred about and seasoned to taste with salt and pepper, and, when thoroughly heated, was served in a hot dish.

In some localities of the far west, wheat and barley were hulled by some home-made device, and used as cereals. Cornmeal mush with cool whole milk often makes a satisfying supper on a winter evening, and such a repast usually leaves no ill effects.

In addition to the whole-grained hominy, coarse hominy, fine hominy, and other cereals are common in our markets. These can be purchased in retail quantities at two to four cents per pound. Coarse hominy, like coarse oatmeal, requires a very long time for cooking.

To Cook Coarse Hominy.

Use six cups of boiling liquid to each cup of hominy. Salt to taste. Cook six to ten hours, either over a slow fire, or in a double boiler. The only object in using the double boiler is that it is easier to keep the food constantly cooking, and there is no danger of burning.

To Cook Fine Hominy.

Use four cups of liquid to one cup of hominy. Cook from three to six hours. Salt to taste.

To Cook Cerealine Flakes.

This is one of the specially prepared cereals which is partially cooked during the process of manufacture. The directions with this package cereal sometimes read "Cook one minute," but one usually finds fifteen minutes cooking to be more satisfactory.

To Make Cornmeal Mush.

Use four cups of water to one cup of cornmeal. Have three cups of the water salted to taste, and boiling in the vessel in which the meal is to be cooked. Wet the cornmeal in one cup of cold water, then put into the boiling water, carefully stirring to avoid lumps, and cook half an hour directly over the fire. Stir often enough to prevent burning, or set the close-covered vessel containing the mush in a kettle of hot water, also covered, and cook two hours. If the mush is to be cooled and fried, use half a measure more of water to the same amount of cornmeal, as the mush thickens in cooling, though the fried mush should never be soft enough to break when cooked.

Mush from Coarse Oat Meal.

Measure and put into the upper part of the double boiler, or into a tin pail having a tight-fitting cover, a sufficient amount of water to make the quantity of mush desired, using the same measuring dipper or cup for both the water and the oatmeal. Set aside one-fifth as much oatmeal as you have hot water in the kettle. When the water is boiling, salt it to suit the taste, and sift in the oatmeal with the hand. Do not stir the oatmeal, as this renders it stringy and less palatable, but lift from the bottom of the vessel with a spoon to prevent burning. Let cook directly over the fire until it swells and

ceases to settle to the bottom, then set in the lower part of the double boiler, or, if in a pail, cover the pail closely and set in a kettle of boiling water; cover closely and let boil from six to ten hours.

Mush from Fine Oatmeal.

Proceed in the same manner as for coarse oatmeal, except take one-fourth as much meal as water and cook three to six hours.

Mush from Rolled Oats.

Use one part of cereal to three parts of boiling water and cook one and one-half to three hours.

To Cook Rice.

Free the rice from all objectionable parts, and wash well to remove any loose starch. Put a cup of prepared rice into two quarts of boiling water, and cook rapidly for fifteen or twenty minutes, or until the grains are tender, drain in a sieve or colander, and set on a warm part of the range to dry off.

A more economical way of cooking rice, and one which is equally as good when skillfully done, is to put a cup of prepared rice into three cups of boiling water, slightly salted. Let boil rapidly until the grains swell some, then put into the double kettle. When done, set on back of range to dry off, and lift from bottom with a fork.

Vitos.

One and one-half cups of milk, one and one-half cups of water, one teaspoonful of salt, three-fourths cup of Vitos. Let milk and water boil, then stir the Vitos into it, and let cook one-half hour in double boiler.

Cracked Wheat.

One cup of cracked wheat, one quart and one cup of water (five cups), two level teaspoonfuls of salt. Let the water boil, then stir the cereal into it, and cook five or six hours in a double boiler.

ANALYSIS OF CEREALS.—Compiled by Jenkins and Winston.

	No. of Analysis	Water	Ash	Protein	Crude Fibre	Nirtogen F. Ext.	FAT
Wheat, spring	13.	10.4	1.9	12.5	1.8	71.2	2.2
Wheat, winter	26.	10.5	1.8	11.8	1.8	72.0	2.1
Wheat, all varieties	3.0	10.5	1.8	11.9	1.8	71.9	2.1

COMPOSITION OF CEREAL FOODS.—Slosson.

	Water	Ash	Protein	Carbo-hydrates	FAT	Retail price per lb. in Montana	
Pettijohn's Breakfast Food	9.5	1.5	10.5	76.9	1.4	7.6	Cts.
Farina	10.9	0.7	10.9	75.9	1.5	15.8	
Cracked Wheat	9.3	1.4	12.6	74.4	2.2	7.6	
Wheatlets	10.0	1.5	10.4	76.2	1.7	4.3	
Ralston's Breakfast Food	9.7	1.5	15.1	71.7	1.9	11.2	
Quaker Oats	7.4	1.6	17.2	66.6	6.8	7.9	
Bulk Oat Meal	8.7	1.7	17.7	65.8	6.5	2.5	
Cerealine	9.5	0.5	9.9	78.7	1.2	9.2	
Velvet Meal, (Corn)	9.8	0.6	6.7	80.5	2.3	4.1	

Average Analysis of Wheat Flour, Corn Meal and Oat Meal.

Wheat Flour	12.4	0.5	10.8	75.1	1.1	
Corn Meal	15.0	1.4	9.2	70.6	3.8	
Oat Meal	7.0	2.0	14.7	68.3	7.1	

References: Univ. Wyoming, Bulletin No. 33, pp. 82, 83; Univ. Minn. Agr. Station Bulletin No. 54, p. 78; U. S. Dept. Agr., Division of Chemistry, Bulletin No. 45, pp. 30, 31, 38-40.

CHAPTER VII.

WHEAT AND WHEAT FLOUR.

Wheat.

From very early times, wheat has held the place of one of the choicest foods for man. Next to rice it is the most extensively used by the human race of any of the cereal grains, and the most used among the civilized nations. Corn and other coarse grains can be produced at less cost than wheat, and are not so suitable for human food, which accounts for wheat never having come into general use as food for stock. There have been times when, owing to the enormous production of wheat, its price in some localities was only a trifle more than that of corn. Under these circumstances, farmers fed wheat in large quantities. One state (Kansas), says Mr. Coburn, used in this way 4,000,000 bushels of wheat in the year 1893. The following year more than twice that amount was dealt out to stock.

Prof. Henry, of Wisconsin says, "that wheat was found to be a food of great palatability, though not equal to corn for fattening purposes; yielding perhaps ten per cent. less returns in feeding fattening stock." He found that wheat furnished abundance of nutriment, and, through variety, gave edge to the appetite. In this we may learn a lesson from the lower animals,—vary the diet instead of catering to a poor appetite by concocting unwholesome dishes. The Prairie Farmer, in 1894, asked Swift & Co., packers in Chicago, to state their opinion as to the character of the flesh of wheat and corn fed animals. They replied: "There is quite a perceptible difference between wheat and corn fed hogs and cattle. We do not consider that wheat-fed stock yields as well as

corn-fed stock, there being less fat. The lean meat on wheat-fed cattle has a somewhat brighter red than on corn-fed cattle. The lean meat from wheat-fed hogs is very nice, but as the yield is not so good, there is no particular advantage in it to packers, but we consider wheat-fed stock worth as much as corn-fed stock."

Physical Structure of the Wheat Grain.

To study satisfactorily the structure of a grain of wheat, the aid of the microscope is necessary. The use of the microscope helps the miller much in determining the success of his operations. By treating a small portion of flour with chemicals, he may be able to know whether the number of bran particles in the flour is large. By the aid of careful inspection, he can ascertain whether the bran is intact or whether portions of one or the other of its layers will be ground up in the flour.

If we could take a grain of wheat in our fingers and remove layer after layer, we would find three parchment-like coverings, which, by chemical analysis, give a composition about the same as that of wheat straw. For stock it has practically the same feeding value as straw, but its nourishing value for man is slight. For human beings only the young cellulose, as found in lettuce, spinach, etc., has any value as a nutrient. Cellulose is, however, necessary to give bulk to the food, and aid in the continual movement of the contents of the digestive tract, but for man it is better obtained in mature vegetables than in the form of bran. White flour is more valuable, pound for pound, than whole-wheat flour or graham flour, for the diet of most people, whether sick or well. Commercial bran contains more than the outer parchment-like layer of cellulose. The inner layer of bran consists of cellulose, which contains considerable protein, useful as stock food.

Effects of the Germ on Flour.

Whether the flour makes a better food with the germ

incorporated, or without it, is a question to which the milling world has given much time and attention. Some authorities, among whom are Graham and Richardson, are of the opinion that the germ should by all means be removed. They believe that it not only discolors the flour, but has a decided tendency to cause it to become rancid. If the wheat is slightly unsound, the germ present exerts a marked diastasic influence on the flour. Diastase is a peculiar substance generated during the germination of grain for the brewery, and tends to accelerate the formation of sugar during the fermentation of the yeast. Those who favor incorporating the germ in the flour claim that it renders the flour sweeter, and that a more palatable bread results from its use.

*"Raw grain diastase is produced during the production of the embryo in the growing and unripe seed, and probably then acts as translocation diastase for the purpose of preparing nutritive matter for the developing embryo. The portion of such diastase remaining unused in the ripe seed constitutes the diastase of raw or ungerminated grain." Jago says: "Milling experiments on a large scale have been made on the germy semolinas produced during gradual reduction. Semolinas are separations from the second, third, fourth, and fifth breaks. They are similar to middlings, but are coarser, and contain more germ, and less of the flour-forming portions of the wheat. Such semolinas, on being reduced on stones, yield a dark-colored, unsatisfactory flour, which produces a low quality of bread. On rolling and repurifying these semolinas, the resulting flour is of good color, and yields bread of high quality. So far, experiments afford evidence directly in favor of removing the germ. The steady demand for roller-made flour demonstrates that the opinion of the public as consumers is in favor of its removal."

*Jago—Page 281.

Wheat as Food.

In the microscopical and chemical examination of wheat bran, it is found to contain, like straw, a large amount of cellulose. In addition to this and the aleurone cells which are found on the inner coats, it carries with it some starch when it is separated from the rest of the wheat kernel. Bran is found, in some instances, to be a valuable food for farm stock. It contains a large amount of protein and mineral matter, and the bulk furnished by the cellulose is in some cases an advantage. Wheat is such a popular food for man that the production of by-products is very large. The by-products are those portions of wheat which are undesirable for human food, but make valuable and nutritious food for domestic animals. In the manufacture of flour, about twenty-five to thirty per cent. of the wheat grain is offal, and is available for stock feeding.

When cereals are manufactured from wheat, a much larger per cent. of it is available for human food. Color in this case plays an unimportant part, and the germ is very palatable when properly manipulated and used. "Cereals," says Prof. Atwater, "when properly prepared, are very completely digested and absorbed."

Bunge says, "that the theory that the normal food of the adult is furnished by the proteids and carbohydrates in the proportion met with in cereals, and that this diet would only require the addition of fat, seems to be confirmed by experience. The laborers in some districts in Bavaria, who do the hardest work, are said to live on a diet prepared from flour and lard." While this may prove that, in cases of extreme necessity, people can live on such a diet, it does not prove that in this land of plenty it is a wise thing to thus make the ration.

Fat is an important element of food, but the greater portion of fat has been removed from the wheat by discarding the germ in the manufacture of flour. The

amount of fat in the germ is given at from nine to twelve per cent.

Starch makes up the principal part of the bulk of the wheat grain. In different analyses it varies from sixty-three to sixty-seven per cent. This is an important food element, as it may serve as fuel, and yield energy in the form of heat and muscular strength, or it can be transformed into fat.

Dextrine exists in sound wheat in small quantity. The presence of this in either wheat or flour in large quantity would be objectionable. Much sugar indicates unsound wheat. A rather low percentage of soluble extracts is an indication of soundness. The soluble extracts are soluble proteids, sugar, dextrine, potassium, and phosphates.

Gluten is a very important element in the wheat or flour. It is not only important that it be present in sufficient quantity, but its quality must also be considered. Flour containing poor gluten makes fewer loaves of bread to the number of pounds used, and those few are not well risen. Poor gluten will break early, and allow the gases to escape during the process of fermentation. Dough having poor gluten is soft and sticky and easily broken. Flour having good gluten will give a tough, elastic, and well-risen dough. It will absorb and retain much water, thus making a greater number of loaves from the same quantity of flour. Gluten procured by washing such flour is tough and elastic. Good gluten is very necessary to good bread, and, as it is the muscle-forming element of the flour, it is also a very important food element.

The mineral matter of wheat occurs principally in the bran; consequently, like the fat, is mostly lost in the preparation of wheat for human consumption in the form of bread. The wheat is cleaned of straw, large weed seeds, and light particles of chaff and dirt, and in the large mills it is rubbed with brushes and tossed against sharp edges of

iron until all the fuzzy ends and loose particles of hair and dirt are removed, and the kernels are bright and free from all foreign substances. The wheat is then passed between rough corrugated rollers, which are just far enough apart to break the kernel open on the crease side and flatten it out. The flakes of wheat are now passed over a fine sieve, and any small floury particles are sifted out, and are called "middlings." The flakes, sometimes called "first break scalp," are now run through another set of rolls, or breaks, and are crushed thinner, and, on passing through another sieve, give up some more fine flour from the starch cells in the center of the kernels. This floury portion or middlings is mixed with that taken out after passing through the first break. Thus the flakes called "break scalp" pass through half a dozen sets of rolls, some flour being sifted out each time, and in the end the flakes have been crushed and rubbed until the floury part of the kernel is all removed, and only the flakes of bran remain. Though the middlings which came out after the first break came from the middle of the kernels, and were more nearly pure starch, while that which came out last was rubbed off the inner surface of the bran, and contained more protein or glutenous compounds, all this is usually mixed together. Strange as it may seem, these middlings, which are already nearly fine flour, are again run between fine rollers, and are sometimes finally ground between burrs. The middlings are separated into two or three portions.

The miller tries to obtain a large percentage of the finer flour which he calls "patent," and a small proportion of bakers' and red dog flour since these bring a less price.

Straight-grade flour comprises the whole of the marketable flour produced from the wheat, without assortment into the grades just mentioned.

The per cent. of moisture in straight-grade flour is almost identical with that of wheat. The per cent. of

gluten is proportionately greater than in wheat, the bran and shorts having been removed. The per cent. of ash and phosphoric acid is considerably lower for the same reason. Fat and cellulose are likewise lower in percentage.*

Red dog is the lowest grade of flour. It is rich in protein and fat, as it contains much of the wheat germ, and is valuable to stockmen, but has little value in bread-making, because good gluten is lacking.

Wheat can be very completely freed from the germ by the roller process. The germs are sifted out during the process of manufacturing the flour. The germ forms three by-products, known as first, second, and third germ. They are mixed with branny and starchy products of the wheat, the second being the purest. Wheat germ is utilized in the manufacture of breakfast foods. The poorer grades of flour are utilized by stockmen.

The palatability of wheat is well illustrated in our liking for bread, though it is not always so palatable a product as the flour is capable of producing. One reason for its palatability lies in the fact that its gluten is superior to that found in any other grain. It is capable, in skillful hands, of forming a delicate and porous loaf. Cereals manufactured from wheat and other grains are very numerous, and should be used more largely than they are.

The tables show that they possess a high food value. Much truth is put into the mouth of the fabled medicine man of Egypt, when he is made to say: "My soul in this world is dependent upon my body, my body on my stomach, and my stomach on my cook." Nowhere, it seems, has the cook more power over the soul in this way than in the handling of flour and cereal foods. Properly prepared and cooked, they are highly palatable, and very completely digested and assimilated. But if

*Jago—Page 306.

poorly or partially cooked, their high food value is largely lost. Cereals are certainly very excellent food, though fancy names add nothing to their food value, and in some cases their price is very much higher than their food value and their palatability warrant.

Adulterants in Wheat Flour as Commonly Used.

Rice meal, rye flour, potato starch, cornstarch, meal from leguminous plants, as peas or beans, and corn flour; also the following mineral bodies are sometimes used as adulterants: Alum, borax, chalk, carbonate of magnesia, and bone ash.

The tests for these must be mostly made by the chemist and microscopist, as the adulterations are fine, like flour.

CHAPTER VIII.

YEASTS.

Fermentation.

*" 'Fermentation' may be defined as a generic term applied to that group of chemical changes which are consequent on and inseparable from the life and development of certain microscopic organisms."

There are many kinds of fermentation, a few of which are enumerated: Alcoholic fermentation is used in bread making. Its products are alcohol and carbon dioxide. Viscous or ropy fermentation produces a ropy condition, and is probably the cause of the ropy bread sometimes seen. A familiar example of lactic fermentation is seen in the souring of milk. Its most important product in that case is lactic acid. Acetous fermentation is seen in the change of fruit juice into vinegar; the sugar of the liquid being changed so that acetic acid is formed. In putrefactive fermentation, offensive products are formed. The bread maker is especially interested in alcoholic fermentation and the things which accelerate, retard, or injure its action in giving best results.

Yeast is regarded as a microscopic plant. It is generally believed that, in order that yeast be most healthy, it must have access to light and air, in order that it have the requisite amount of oxygen.

A noted English authority on bread making has made experiments to prove this theory. He says: *"The experiments prove very clearly that the agitation has resulted in the yeast being in every instance more vigorous in action. In case of the spontaneous ferment, there was

*Jago.

a distinct, though slow, evolution of gas. The sample pitched with pressed yeast had more than twice the capacity for causing the evolution of gas than had those which were pitched with brewer's yeast. It is plain that agitation in some way increases the vigor of yeast." It is found that yeast grows better, also, when a large surface is exposed to the air.

Influence of Temperature on Fermentation.

Yeast grows most rapidly between the temperatures of 25 degrees C. to 35 degrees C., which equals 77 degrees F. to 95 degrees F. Yeast ceases to grow at a little less than 50 degrees F., but is not always killed even by freezing. Freezing, however, is apt to injure it. Although yeast grows rapidly at 95 degrees F. (a temperature at which the liquid merely feels warm to the hand, as the human temperature is about 90 degrees F.), the temperature employed in English breweries is said to be from 65 degrees F. to 72 degrees F.

Let us ascertain why the brewer does not hasten the process of fermentation. From numerous recent researches, there is evidence of a number of organisms which possess the power of producing lactic acid by the conversion of glucose. One or more of these is always present in commercial yeasts. Lactic fermentation proceeds most favorably at a temperature of about 35 degrees C. and is retarded and practically arrested at a temperature which still permits the growth and development of the yeast organism. The other bacterial and allied ferments are also affected in a similar manner by temperature. Hence 75 degrees F. to 77 degrees F., which allows the yeast to grow well, but retards the growth of foreign ferments, is far better than a higher temperature.

Strength of Yeast.

The following experiment, made by Professor Jago, taken in connection with other recent experiments showing that foreign ferments in bread impair the food value, prove conclusively that it is far better to use plenty of good yeast, than a small amount, or poor yeast, or use no yeast, but simply a starter and depend upon spontaneous fermentation. In the experiment, sterilized vessels are used, and the same amount of wort placed in each. The vessels are loosely covered and the temperature is kept at 77 degrees F.,—a temperature best adapted to allow the yeast to overcome the foreign ferments. One vessel of wort was left plain, that it might ferment spontaneously; to the second, fifteen grains of good brewer's yeast was added; to the third, ten grains of compressed yeast was added. The two with yeast were aerated; the other one was not. They were allowed to stand the same length of time, and on examination, the one to which no yeast was added was found to be swarming with bacteria, and no yeast cells were present. Those which were started with yeast had practically no foreign ferments. The conclusion drawn is that at that temperature yeast is vigorous and hardy, and overcomes the power of foreign ferments. Yeast always produces a sweeter and finer-flavored bread than other ferments do. Yeast which is made with hops is able to overcome the power of foreign ferments longer than that made without hops, because the bitter of the hops is not suited to bacterial growth, but since one can use but little of a yeast made with hops without injuring the flavor of the bread, and a weak yeast acts so slowly as to cause disastrous results, it is better to make yeast oftener without hops, and use plenty of it in bread making. There are a number of different kinds of yeast. Brewer's yeast, according to the best authority, is not the best yeast for bread-making purposes, because the

brewer's business demands yeast, and he uses good yeast in his business, and the supply of best yeast is consequently limited. In a fermenting liquid, the middle yeast is considered stronger and more vigorous than that on either the top or bottom part of the fermenting liquid. Therefore it is wise for the breadmaker always to stir the yeast well before taking out a portion for breadmaking. In speaking of brewer's yeasts, Jago, in "Science and Art of Bread Making," says: "Too frequently that sold to bakers is the refuse yeast from either the beginning or the end of fermentation. Bakers who use brewer's yeast should insist on being supplied with that equal in quality to what the brewer himself uses in starting fermentation. To the baker, as regards yeast, above all things, the best is the cheapest. One spoiled batch of bread will cost the difference between good and bad yeast, over probably many weeks or months."

What is true of poor yeast in the bakery is true of poor yeast in the home. There are yeasts known as "patent yeasts." These are made by bakers for their own use. There is no reason why these yeasts should not be universally good, provided the baker is skilled in the art of manufacturing yeast, and is willing to give it sufficient attention, and to use only the best materials in its manufacture. The author quoted before says: "In making patent yeasts, it is very poor economy to stint either malt or hops. A weak wort produces a much less healthy and vigorous yeast than does a strong one, besides being much more subject to disease fermentation and consequent acidity." The same rule will apply to making yeast. at home. The yeast must be made often and the vessels must be sterilized, and a strong and vigorous yeast used to start with, if one would obtain the best results and avoid a weak yeast, with many foreign ferments.

There is another variety of patent yeast known as "flour barm." This is extensively used in Scotland. The

chief peculiarity of bread from this is its decidedly acid taste, thought to be due principally to lactic acid. Much salt is used in making this bread, and it has not the flavor of what, in some other countries, is called the best bread.

*"Virgin barm differs from Parisian only in being self-fermented. Parisian barm was introduced from Paris to Scotland about thirty years ago. It is essentially a leavening ferment, a scientific modification of the systems of ancient Egypt and modern France."

Dry Yeast.

The dry yeast cakes of commerce are simply yeast made by some one of the foregoing processes, and mixed with some cereal preparation, cut into cakes, and dried. Dry yeast, when it can be obtained fresh, will make a very good quality of bread. In making bread with this yeast, it is well to use potato water. In making yeast, it is necessary to have both carbohydrate and proteid matter. Such grains as corn, rye, and barley are used. A small amount of grain is best malted and then reduced to the proper fineness. It is then fermented to the proper stage, when the "starter" yeast is added, and it stands from ten to fourteen hours at a certain temperature. The other necessary grain is prepared and added at the proper time, and after a series of necessary manipulations, the yeast rises to the surface, is skimmed off, washed, properly prepared, and made into the cakes in which we see it. For a full description of the process of making compressed yeast, see "Science and Art of Bread Making," Jago.

Good compressed yeast should not be waxy, but should break brittle. It should have a pleasant odor, and act quickly when added to a sponge. Compressed yeast, when fresh, is strong and vigorous, certain to produce good results under proper conditions and handling. The only objection to this yeast is that it is expensive, and does not keeep fresh long. While we pay what seems

*Jago.

like a large price for a small amount of yeast, we get more good lively yeast plants in one of those small cakes than in a much larger quantity of other yeasts. It is better to buy this to start with, when possible, for good wholesome bread can be made with home-made yeast if one has good yeast to start it with; but after home-made yeast is used several times to start with, the yeast produced becomes too weak for the best results, and needs reinvigorating. Home-made yeast is best kept in a glass jar. Such a receptable can be washed and sterilized each time fresh yeast is made, and this is absolutely necessary to insure the yeast against foreign ferments. Compressed yeast keeps best with the wrappers removed, and the yeast put into a glass jar and covered with cold water. The water should be changed the same as on cut flowers. The yeast must then be measured with a spoon when used.

Methods of Rendering Dough Light without Yeast.

Aerated bread is made light by a mechanical process. The liquid with which the flour is mixed into dough is charged with carbon dioxide. The manipulations are so performed as to prevent the gas escaping until the dough is made, when the imprisoned gas expands and renders the dough light at once. The flavor of such bread is not considered so fine as that of the best yeast-risen bread, and people usually tire of it in time.

Baking powders render doughs light by means of carbon dioxide gas. The gas is produced in the dough usually by the action of some acid on sodium bicarbonate. This action is, in some powders, brought about by the presence of moisture alone, while in others heat is necessary to its action. In using the powders which act by the presence of moisture alone, one must work rapidly, that the dough may be placed in the oven and become set by the heat before the gas escapes, in order that the air cells may remain distended.

Baking powders may be classed under three general heads,—tartrate powders, phosphate powders, and alum powders. Some baking powders contain two or more of the above acids in their composition. The tartrate powders, as the name indicates, have tartaric acid for their acid portion. This may be simply tartaric acid, or it may be combined so as to require a different name. The two acids used in the tartrate powders are tartaric acid and cream of tartar. A tartaric acid powder requires that the dough be handled quickly and put into a hot oven, as the acid dissolves readily, and the action is soon over. In using a cream of tartar powder such great haste is not absolutely necessary, for cream of tartar dissolves slowly in cold water, but rapidly when heat is applied. The housekeeper can readily ascertain whether a powder dissolves rapidly or slowly by placing a small amount in a glass, and testing with cold water and then with hot water. All baking powders contain some air-dried starch in addition to the acid and alkaline portions. The object of using the starch is to prevent the powder losing its power by the acid and alkaline portions acting on each other in the presence of absorbed atmospheric moisture. The baking powder can should always be kept closely covered, as moisture enters from the atmosphere.

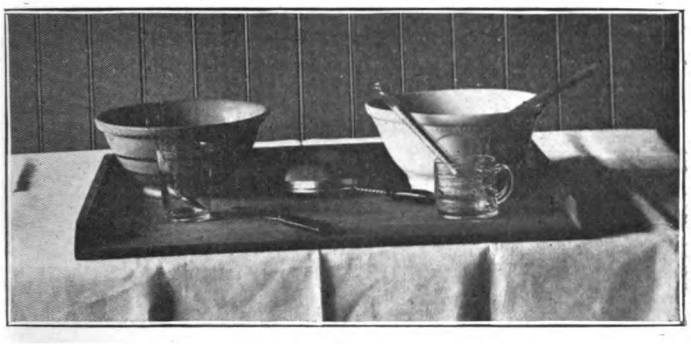
The phosphate baking powders contain some form of phosporic acid as the acid constituent. Doughs mixed with phosphate powders should be handled quickly, as the powder begins to act as soon as dissolved in water.

Among the chemicals used as the acid portion in alum baking powders are potassium bisulphate ($KHSO_4$) and alum. According to Jago, "the potassium and sodium sulphates produced when these substances are neutralized by sodium bicarbonate are powerful purgatives, and as such are absolutely unfitted for introduction into bread."

It is evident that, for general use, yeast bread, when

properly made and baked, is preferable to any of the above-named breads. It has a fine flavor, and produces no deleterious results.

In every farm home the hot breads should usually be made with sour milk and soda. To be skillful in the use of soda requires good judgment and constant practice, but to many the products are more delicious than those in



Utensils Used in Bread Making.

which baking powder is used, and they are very wholesome. When eggs are used for rendering breads and cakes light, we depend on beating air into the eggs and dough, and keeping it there until, expanded by heat, it makes the dough light.

If one wishes to make baking powder at home, it can be done by mixing cream of tartar and soda in the proportion of one teaspoonful of baking soda and two of cream of tartar. Sift two or three times, to be certain that it is thoroughly mixed, and use at once. To make a powder that can be kept, secure eight ounces of cream of tartar of good quality, four ounces of baking soda, and three ounces of cornstarch. Be sure that all the ingredients are perfectly dry. Sift the soda and starch (after stirring together in a perfectly dry bowl until mixed) three times, letting it fall onto a paper on

the table, and placing a second paper under the sieve. Pour the mixture again into the sieve, and shake through. When these have been sifted three times, stir the cream of tartar into them, and sift in same manner as before. When done, put into a closely-covered tin can or Mason jar, and keep in a dry place, closely covered. Use a heaping teaspoonful to each cup of flour.

References: Science & Art of Bread Making—Jago—pp. 237, 238, 244, 252, 257, 346-365, 386-389. Also pages 360-365, 395, 397, 398.

CHAPTER IX.

BREAD MAKING.

In order that the same grade of flour may have always, as nearly as possible, the same strength and quality, some mills employ a person who makes into bread a certain weighed quantity of flour as often as is necessary to know the strength of the flour milled, and the proportions of glutenous and starchy wheats are varied as determined by the results.

Flours made from different kinds of wheat vary greatly in strength. Strong flour will rise high in loaf, and will absorb a large amount of water. The baker will pay more for strong flour, because from a hundred pounds of strong flour he can make a larger number of loaves than from weak flour. With flour of medium strength, the housewife can make loaves with beautiful crust, crumb fine, soft, and not quickly dried out, aromatic, and of nutty flavor,—such bread as will take the place of cakes and pies. Uniformity in strength is very much desired, so that the baker, having learned to make good loaves from a given sample of flour, can, with uniform treatment, always supply the family with choice loaves.

Strength is given a flour by the gluten, which forms about one-seventh of the weight of the flour. Gluten is made up of several nitrogenous compounds, mainly gliadin and glutenin. The proportion of these two substances determines the strength of the gluten. Much gliadin and little glutenin makes a soft, sticky dough; an excess of glutenin and a small amount of gliadin makes weak dough; while wheat which has six parts gliadin to four parts glutenin makes a strong flour, which will rise high, and will retain its ability to rise till worked down

two or more times. In bread making, dough should rise only once before moulding into loaves. (See Minnesota Bulletin No. 54.)

The food value of flour does not always correspond to its strength. The percentage of gluten has very much to do with its food value, since the flesh-forming gluten has more value per pound than the heat-forming starch, sugar, and cellulose. Flours vary from seven to eighteen per cent. of gluten. The standard flours from the northern mills have from twelve to fifteen per cent. of gluten.

The price of the best flour is often twice that of the lowest grades, because it is easier manipulated, makes a whiter loaf, with softer crumb, and a more palatable and more healthful bread. Such flours do not always contain food substances of greater value. In fact, the stockman might properly choose some of the low-grade flours for his animals, in preference to the best patent. The modern roller mills make several different grades of flours, as patent, bakers', and low-grade flour. The prices at wholesale are relatively as follows: Best Patent, $3.70 per bbl.; Straight, $3.50 per bbl.; First Bakers' Patent, $3.45 per bbl.; Second Bakers' Patent, $3.30 per bbl.; Low Grade (Red Dog) $17.00 per ton.

The chemical composition of these flours is shown in the following tables:

COMPOSITION OF GRADES OF FLOUR.

	Dry Matter per cent	Ash per cent	Fat per cent	Protein per cent	Carbohydrates per cent
Patent Flour.....	87.64	.51	1.62	12.44	73.07
Bakers' Flour.....	91.96	.75	2.22	15.50	73.52

See Jordan and Hall's Bulletin on Digestibility of Food Stuffs.

Red dog flour, on account of the poor quality of bread which it produces, is used mostly for stock feeding. The following is its composition, as given by Henry, in "Feeds and Feeding:"

	Dry Matter in 100 pounds	Digestible Nutrients in 100 pounds.			Fertilizing Constituents in 1000 pounds.		
		Protein	Carbohydrates	Ether extract	Nitrogen.	Phosphoric acid.	Potash
Red Dog Flour.....	90.3	13.5	61.3	2.0	31.8	21.4	10.9

In red dog flour are portions of the germ of the wheat, which, though made up of rich muscle-forming foods and of oils, are of such a mechanical nature as not to aid in making the loaf light.

The action of yeast in the dough is to produce gas by breaking up the starch and other compounds of the flour. This gas tries to escape by expanding, and in doing so enlarges within the minute interstices of the dough. As the gas accumulates, these interstices become larger, and the walls of gluten with entangled particles of starch are stretched out into thin plates. If the glutenous membrane is made up of the right proportions of glutenin and gliadin, without too much other proteids, it is tough, and may be stretched to a large size in thin sheets, just as a child at play may make very large bubbles if his mixture of soap and water is pure and properly combined.

When heat is applied in baking bread, the gluten is coagulated or hardened, just as an egg is hardened by heating, so that the thin plates separating the interstices lose their power of contracting, or of being further stretched. The desire is to have the bread light, yet with comparatively small interstices or pores in the crumb, preferably none larger than a kernel of wheat. To secure a fine crumb, the reworking of the dough, the time to place the loaf in the oven, and the heat of the oven must be so managed as to have the gluten hardened when the loaf is properly raised. Experience with a given brand of flour will enable the baker to determine the number of times to work the dough down, and the amount of kneading to give it; also the size to allow the loaves to rise the last time, so as to give the desired texture of crumb. If the oven is quite hot when the loaves are put in, a crust of coagulated gluten is soon formed, which will hold up the interior of the loaf, preventing the crumb from contracting into a sodden mass, as sometimes occurs when the oven is not hot, and the loaf is heated up too slowly.

Patent and other superior kinds of flour sell higher than the poorer grades, because their gluten, even though it be less in quantity, will stand up till baked into beautiful palatable loaves, and the crumb may be eaten without doughing up in the mouth. Fine white bread is at once cake and the staff of life. No other cake compares with it as a source of every-day enjoyment, and no other bread will take its place where civilization has introduced it. White bread is the most important dish of civilization. The woman who presents her family with perfect bread at every meal, and, with it, good butter and cold water or milk, has a basis upon which to feed any member of her family and every guest, whether well, sick, or notional. Good white bread and water are the two universal foods; no one tires of them.

A pound loaf of bread can be made from about three-quarters of a pound of flour, about twenty-five per cent. of water being added to the flour during the process of bread making. With some flours, five to ten per cent. more water can be absorbed, making a greater weight of bread product from a given weight of flour. This additional weight is water, and not nutrients. At two cents per pound for flour, it is estimated that a pound loaf of bread can be made, not counting fuel and labor, for about two cents; half a cent being allowed for shortening and yeast.

Next to the quality of the flour, the things which are of paramount importance in bread making are the quantity and quality of the yeast, the temperature at which the dough is kept while rising, and the length of time which is allowed to elapse between the time of adding the yeast to the mixture and the baking of the bread.

The discoveries in the new world—the world of little things—by Pasteur and others, have led to the preparation of yeast of superior quality.

"About the year 1875, some practical experiments were

made in connection with the new process of brewing, and a yeast of irreproachable purity was cultivated and used. This yeast, which was repeatedly used during the summer of that year, always produced a beer of remarkable keeping properties, while beer made at the same brewing from the same wort by the ordinary process did not remain sound three weeks, though kept in the same cellar as the other."

It is not possible for us to have strictly pure yeast for use in bread making, and it might not be best for this purpose if we had it, but we can have yeast sufficiently pure to produce a quality of bread which is in every sense wholesome, palatable, and possessed of good keeping qualities. When compressed yeast cannot be obtained fresh, it is better to use home-made yeast, which can always be had fresh and vigorous.

In order to insure good results in bread making, no longer time than five hours should be allowed to elapse between the time that the ferment is set, and that at which the bread is taken from the oven. The temperature should range from 75 degrees to 80 degrees F., as this degreee of heat is favorable to the action of the yeast, but less favorable to the development and multiplication of the ferments present, which in their action produce deleterious effects. These, left a longer time than four hours, will accomplish some of their destructive work. A good example of the evil effects produced by giving too much time to fermentation can be frequently seen on some tables. Take a roll or biscuit, and you find it a sample of fermented bread of very good quality, but choose a slice of a loaf made the same day, and it is inferior in appearance, taste, and nutritive qualities. Investigation will usually prove that the ferment for loaf and rolls was set at the same time, and the rolls were baked for tea, while the loaves set an hour longer before going into the oven. A single simple experiment is suffi-

cient to prove that the temperature at which the dough is kept while rising has a great influence on the quality of the bread produced. Mix at as nearly the same time as possible three portions of dough, using plenty of good yeast, and having all conditions except temperature the same in the three cases. Let one portion be mixed with a warm liquid, and set in a warm place to rise, at 90 degrees F., another mixed with a liquid at 65 degrees F., and a third at 75 degrees F., and allow to continue at those temperatures while rising, and, when baked, compare the loaves as to color, taste, and odor, and those who believe that much yeast yields the unpalatable product known as "yeasty bread" will notice that the loaf in which right conditions were followed gives off a pleasant odor, and has a fine flavor, though the same quantity of yeast was used as in the loaf which presents the unsightly appearance, and has the disagreeable taste and smell produced by too high or too low a temperature.

Loss of Dry Matter in Bread Making.

*"In bread making, the action of the yeast and heat results in (1) the fermentation of the carbohydrates, and the production of carbon dioxide and alcohol; (2) the production of soluble carbohydrates, as dextrin, from insoluble forms, as starch; (3) the production of lactic and other acids; (4) the formation of other volatile carbon compounds; (5) a change in the solubility of the proteid compounds; (6) the formation of amid and ammonium compounds from soluble proteids; and (7) the partial oxidation of the fat. In addition to these changes there are undoubtedly many others which take place. Inasmuch as many of the compounds formed during the fermentation process are either gases or are volatile at the temperature of baking, appreciable losses of dry matter must necessarily take place in bread making. These losses are usually considered as amounting to about two per cent. of the flour used. In exceptional

* Minnesota Bulletin No. 67.

cases, as in prolonged fermentation, under favorable conditions the losses may amount to eight per cent. or more.

LOSS OF CARBON IN THE FORM OF ALCOHOL.

"During the fermentation process in bread making, the production of carbon dioxide is accompanied by the production of alcohol. Theoretically, for every part of carbon dioxide gas formed there is also produced 1.04 parts of alcohol. It is generally supposed that, during baking, the alcohol is entirely given off. The above theoretical experiments, when calculated on the basis of amounts of alcohol formed during bread making in the the carbon dioxide evolved, would be as follows, in the short-fermentation process: (1) 1.10 per cent. alcohol: (2) 1.13 per cent. alcohol; (3) 1.04 per cent. alcohol. Similar values for the long-fermentation process would be: (5) 0.83 per cent. alcohol; (6) 0.94 per cent. alcohol; (7) 1 per cent. alcohol; (8) 1.07 per cent. alcohol; general average, 1.02.

"On an average there is about 1 per cent. by weight of alcohol produced when bread is made. It serves a useful purpose. In baking, the alcohol is volatilized and the vapor aids the carbon dioxide in expanding the dough, thus making the bread more porous.

"Samples of normal fresh bread were subjected to distillation and to other tests, but the distillate did not contain enough alcohol to give an appreciable reaction.

"In general it may be said that there is on an average about 1 per cent. of alcohol formed during bread making, and no appreciable amount of this alcohol is left in the bread.

PRODUCTION OF SOLUBLE CARBOHYDRATES IN BREAD MAKING.

"In wheat flour, the carbohydrates are present mainly in the form of insoluble starch. There are, however, a number of other insoluble carbohydrates and small amounts of soluble carbohydrates, chiefly in the form of dextrin, with a small amount of sucrose.

"The soluble carbohydrates of wheat investigated by the Division of Chemistry were invert sugar, sucrose, and dextrin or galactin.

"In addition to the soluble carbohydrates mentioned above, small amounts of raffinose have been reported by several investigators in wheat germs. Wheat germ contains more sucrose than any other of the wheat products, and the amount of soluble carbohydrates in wheat flour depends largely upon the proportion of germ present.

"A sample of flour (No. 2) used in the experiments at the Minnesota Station to determine the extent to which starch is changed to soluble forms in bread making contained 1.62 per cent. of soluble carbohydrates, calculated as dextrin.

"In addition to the production of alcohol and carbon dioxide gas by fermentation, the action of the yeast and heat results in the production of soluble carbohydrates from insoluble forms. During the baking process, the heat changes some starch to dextrin. In the process of bread making, this results in both the consumption and production of soluble carbohydrates. The extent to which insoluble starch is changed to soluble forms in bread making is a subject which does not appear to have been extensively investigated. Koenig states that fine wheat bread contains 4.02 per cent. sugar and coarse bread 2.08 per cent. The term 'sugar,' however, is not defined.

"The extent to which soluble carbohydrates are either consumed or produced during bread making is an important matter, because flour contains on an average sixty-five per cent. or more of starch, and any change affecting the starch has a direct effect upon both the composition and value of the bread produced. In order to determine the extent to which soluble carbohydrates are produced, six experiments were made. In three experiments the bread was made by the short-fer-

mentation process, and in three other experiments by the long-fermentation process."

The following from the same bulletin shows that there is a loss of food value as well:

"Under the conditions of these experiments, there was an average loss of 1.58 per cent. of total dry matter, and 1.45 per cent. of the total nitrogen. The difference between the amount of nitrogen in the bread and that in the flour and yeast is so small that it might well be questioned whether this loss is not within the limits of error of ordinary chemical work."

While the amount of nitrogen lost when bread is properly made is small, the amount lost when bread is not properly made may materially exceed the figures given in the experiments to which reference has just been made.

Using a yeast of questionable quality, the bread maker has no assurance that she will have a perfect loaf, though the best of flour may be used, and the greatest attention given to all necessary conditions.

Any yeast which answers the required conditions will bring satisfactory results. We have no good means by which to know, on looking at a cake of dry yeast or a cup of liquid yeast, whether there is a sufficient number of germs in such a state of activity as to enable it to make the dough light in so short a time that the other ferments, which are always present in commercial yeast, will not be able to produce a deleterious effect upon the elements of the flour. Therefore it is wise to test the yeast with a small amount of sponge first.

Besides the yeast, one needs only a little salt, a known quantity of liquid, and sufficient flour to make a dough of the proper consistency, in order to be able to make bread of the best quality. The liquid may be water, or milk and water, or milk alone, but the milk must be always positively sweet, and it is safer in summer to

scald and cool before using. Bread made with water is tougher than that made with milk. French bread is mixed with water alone, Vienna bread with milk and water, and there are several varieties in which milk is the only liquid used.

There is no good reason for putting butter or fat of any kind into bread, but there is an excellent reason for leaving it out, as it retards the action of the yeast. Sugar is not needed, since flour furnishes all that is necessary for the growth and multiplication of the yeast. The addition of any or all superfluous things will cause unnecessary labor, and be found worse than useless.

The amount of flour which it is necessary to mix with a certain amount of liquid to make dough of the proper consistency cannot be given by either weight or measure, without knowing the special brand of flour to be used, as the quantity varies according to the quality, because flours differ so greatly in their ability to absorb and retain liquids. There is, however, an unerring rule for determining the amount of liquid necessary in using any given flour. When a sufficient amount of flour has been added to the liquid measured out, the dough will be of such consistency that it can be handled without flour, and will not adhere to the hands or to the moulding board.

Of patent flour, one quart of liquid will require from three pounds and ten ounces to five pounds, or from three and one-half quarts to five quarts, of flour, and the amount of dough formed from these proportions of liquid and flour will make four medium-sized loaves, or about five pounds of good bread.

Stirred bread, or bread in which the manipulations are performed wholly with a spoon, stirring and cutting the ingredients together, and shaping the loaf with a knife, does not yield the best results. Nearly all the

work may be done with utensils, using the hands in contact with the dough very little, and good bread produced.

A loaf of bread, when properly baked, is cooked entirely through, and has a crust of a chestnut-brown color all over the top, bottom, sides, and ends. In order to accomplish this, the loaf must be small enough so that the center can be cooked without rendering the crust too thick or too brown.

The pan which will best serve this purpose measures four inches across the bottom, is three and one-half inches in height, and is as long as the oven will admit. Russia iron is the best material for pans. Sheet-iron will give equally good results in baking, but it is difficult to keep in order, as it rusts easily. Tin does not give satisfactory results.

Bread which is not sufficiently baked deteriorates rapidly, and will, in a few days, become unpalatable, if not unfit for use; while bread which is perfectly baked will keep in a good condition a much longer time, simply becoming dry and hard, while that which is imperfectly baked becomes moldy, ropy, and may have a bad odor, because the spores of mold and the bacteria have not been killed.

The temperature of the oven at the time the bread is put into it should be about 375° F., with an increasing heat during the first few minutes. At this temperature, rolls will bake in twenty-five or thirty minutes. A loaf of the size and shape described above, in fifty to sixty minutes. A loaf of bread sufficiently baked will emit a hollow sound when tapped on the bottom. As soon as the loaf comes from the oven, it should be removed from the pan and brushed lightly all over with milk or fat, and placed uncovered in such a position as will expose most of the surface to the fresh air. It should not be allowed to come in contact with anything which may impart to it an unpleasant odor. When cold it should be placed in

a tin box or similar receptacle, covered, and kept in a cool, dry place. It is not well to wrap bread in cloths, as it has better flavor when simply kept in a clean vessel.

The best utensils for bread making are an earthen bowl, a wooden spoon, and a medium-sized moulding board, with cleats to prevent moving on the table. A wooden spoon is more noiseless and more easily handled than one of metal. The earthen bowl is easily kept clean and in good condition. It is easy to keep the dough at an even temperature, while rising, in such a bowl.

Many people are seriously disturbed for hours by eating sour bread in which a long time between first setting the dough and baking has allowed acetic and other undesirable ferments to act in producing acids and other deleterious substances in the bread. Whole families are made dyspeptic by poor bread making. But the lack of good flavor, and the presence of acids which disturb digestion are far greater injuries than the mere loss of food nutrients.

Experiments have proven that yeast formed in contact with air having the maximum of free oxygen that it can assimilate is fresher and is possessed of greater vital activity than that which has been formed with an insufficiency of air. In manufactories of yeast, this fact is taken advantage of. The saccharine worts, after the addition of yeast, are left to themselves in shallow vats of large superficial area, that the air may act upon them. Under such conditions, the yeast develops and multiplies rapidly. The white froth which soon covers the surface of the fermenting liquid is skimmed off into vats of cold water, allowed to settle to the bottom, the water pumped off, the contents of the vat drained, and by a series of manipulations it is reduced to masses of the size and form known in the market as "compressed yeast." The yeast is in a state of vigorous growth acquired under the influence of free oxygen, since all the

manipulations are made in contact with air, and the mass is impregnated more or less with oxygen. The yeast immediately seizes upon this gas, and acquires a state of freshness and activity which renders it valuable as a ferment.

The fact that compressed yeast is expensive and spoils readily is sometimes made an objection to its use. If kept where very cold, it will keep in good condition a week or more (if fresh when procured), and when properly manipulated it never fails to made good bread with a comparatively small amount of labor, with no worry, and no loss of material.

This yeast keeps better when removed from the tinfoil wrapper, put in a glass jar, and covered with cold water. The water should be poured off each day, and fresh water put on. Dry yeast cakes may be kept longer than compressed yeast, but in time they also lose their vitality.

Many people pay a high price for coarse flours, believing that they obtain more protein and mineral matter in these than in the finer flours. Late scientific investigations lead to the belief that not all so-called whole-wheat flour is genuine.

*"The bread made from the imitation whole-wheat flours contained less protein than bread made from the patent and bakers' grades of flour, while the bread made from true whole-wheat flours—that is, flours from which none of the germ or other parts of the wheat had been removed—contained about one per cent. more protein than bread made from ordinary flour. No conclusions, how-

*U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 67.

NOTE—For further information on bread and bread making see (1) U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 67; (2) U. S. Dept. Agr., Farmers' Bulletin No. 112; (3) University of Minnesota, Agr. Exp. Station, Chemical Division, Bulletin No. 54; (4) The Science & Art of Bread Making—Jago; (5) U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 34.

ever, as to the relative nutritive value of whole wheat and ordinary flours can be drawn from the figures given. The rye bread contained slightly less protein than ordinary wheat bread, while the corn bread contained less than the rye."

Potato Yeast.

Take six large potatoes, pare, slice, and boil in one quart of water. Soak three dry yeast cakes in one cup of water. When the potatoes are done, mash through a colander, and then add the water (one quart), one and one-half tablespoonfuls of salt, and two and one-half tablespoonfuls of sugar. When cool, add the dissolved yeast cakes, set away in a temperature of about 75° F., and let stand twelve hours, when it is ready for use. The water used should be that in which the potatoes were cooked, with enough added to make a quart.

Home-Made Yeast.

Stir one-half pint of flour to a smooth batter with one-half pint of cold water. Over this pour one quart of boiling water, pouring slowly and stirring rapidly. Place over the fire, and cook four or five minutes. Add two level tablespoonfuls of sugar and one of salt. When cooled to 75° F., add one ounce of compressed yeast, or one pint of home-made yeast. Keep as nearly 75° F. as possible for twenty-four hours, stirring down once in four or five hours. Keep in a glass jar in a cool place. The jar must be thoroughly washed and scalded before putting fresh yeast into it.

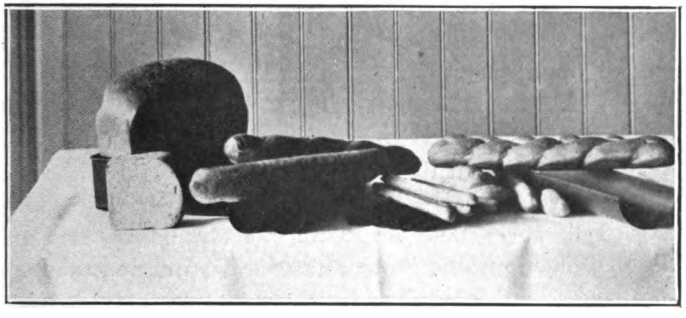
Bread with Home-Made Yeast.

Quick Process.—One cup of good home-made yeast, one cup of milk and water (one-half cup of each) and two level teaspoonfuls of salt. Have the temperature of liquid and flour 75° F. and make into a dough stiff enough to handle without flour, let rise three hours, or until double in size, keeping always at 75° F., and when risen, mould into loaves, let rise one hour and bake.

Bake a small loaf forty-five minutes, or a larger one one hour.

Compressed Yeast Bread No. 1.

To make bread with compressed yeast, break a one-half ounce cake of compressed yeast into small pieces in a cup, and cover with cold water. Place in a bowl one pint of liquid,—one-half milk and one-half water. Make the temperature of the mixture 75° F. Into this liquid put two level teaspoonfuls of salt, stir in a cup of sifted flour; stir the yeast and water in the cup, and pour into this; put in another cup of flour, and beat it



Bread Pans, Roll Pans, Stick Pans.

well. Continue to stir in flour, keeping sides of bowl clean, and kneading with the spoon until nearly stiff enough. Then bathe the hands, wipe them dry, flour the board, and knead the dough until it ceases to adhere to the hands or board when no flour is used. Grease the bowl with some nice-flavored fat and treat the top of dough after putting into the bowl in the same way. Cover the bowl with a white cloth, set on the kitchen table and allow the dough to rise. See that the air is not cooler or warmer than 75° F. Let the dough rise three hours, or until it is double its original size, knead well and mold into loaves, put in greased pans, grease over the top, let

rise one hour, when it will again double its size if properly manipulated, and bake.

Compressed Yeast Bread No. 2.

Put into an earthen bowl one pint of water luke-warm in winter, but cold in summer, and stir in flour until a batter is formed, then stir in one one-half ounce cake of compressed yeast and two level teaspoonfuls of salt. See that the mixture is at 75° F., and let stand at that temperature for two hours; then stir in one pint of sweet milk, keeping temperature at 75° F., and finish exactly as in compressed yeast bread No. 1. This formula makes four loaves of bread.

Liquid Yeast Bread.

Put into an earthen bowl one medium-sized, well-boiled, finely-mashed potato, and pour over it, stirring meanwhile, one pint of liquid, consisting of the water in which the potato was boiled, plus enough boiling water to make a pint. Into this stir one cup of flour, let stand until it cools to 75° F., then add one cup of liquid yeast, stir well, cover, and let stand for six hours, or until light. Then put into it one pint of milk, and flour enough to make a stiff dough, and finish as above.

Bread with Potato Yeast.

To one quart of liquid, one-half milk and one-half water, use one cup of yeast. Put in flour enough to make a medium stiff batter. Add to the liquid four level teaspoonfuls of salt, beat the batter until it seems light, add the yeast, and beat well again. The temperature should be the same as for other bread. Set the sponge out of a draft in a temperature of 75° F. In three hours it should be light and ready to mix up stiff. Let rise again until light, and make into loaves. Let rise another hour, and bake.

Or, it may be made by using equal quantities of yeast and liquid, then proceed as with compressed yeast bread No. 1.

Rye Bread.

To make rye bread, use one-half rye and one-half white flour, and proceed as for white bread, except add one teaspoonful of sugar for every pint of liquid used.

Salt Rising Bread.

Pour one cup of boiling milk over two level teaspoonfuls of salt and one-half cup of granulated cornmeal (either white or yellow meal). Set in a warm place over night. In the morning add one cup of luke-warm water. Stir with a wooden spoon, and add flour until very stiff. Wash the hands, turn the dough onto the floured moulding board, and knead in flour until the dough does not adhere to either the hands or the board. Place in a greased bowl, brush the top of the loaf with butter, cover with a clean white cloth, and set in a warm place, Let rise until light (that is, has doubled in size), knead into loaves, let rise again, and bake same as compressed yeast bread.

Graham Bread with Compressed Yeast.

Make same as white bread, except use one-half white flour and one-half graham flour. To one pint of liquid use one tablespoonful of sugar.

In making either graham or whole-wheat bread, it is better to use at least one-third as much white flour as dark.

Whole Wheat Bread.

Make the same as white bread, except use whole wheat flour and one tablespoonful of sugar to one pint of liquid. In making whole wheat or graham bread, make the dough a little less stiff than white bread dough. Whole wheat and graham require longer baking than white bread, if the loaves are the same size. The loaves may be made smaller and baked in the same length of time.

Federal Bread (For Breakfast or Tea).

Use one pint of milk, one cake of compressed yeast,

two eggs, and one generous teaspoonful of salt. Mix same as bread, except soft as it can possibly be handled, having first poured the hot milk over the well-beaten eggs, and allowed them to cool. When it has risen about four hours, mix in two generous tablespoonfuls of butter, form into loaves, let rise, and bake. While still hot, cut into three parts lengthwise, butter generously, replace in sections, and serve.

Buns.

Beat together three eggs until well broken and mixed. Then pour over them, stirring constantly and pouring slowly, one pint of sweet milk, boiling hot, add three tablespoonfuls of granulated sugar, let cool, stir in some flour, then, if cooled to 75° F., add one cake of compressed yeast, mixed with a little water, and one level teaspoonful of salt. Now stir in flour enough to make a dough stiff enough that it may be kneaded, with care, put into a buttered bowl, and let rise three hours. The temperature should be 75° F. After rising three hours, work in one-half cup of butter, knead, and set to rise for two or three hours, or until light. Then make into buns, let rise one hour, and bake.

Parker House Rolls.

Heat one pint of sweet milk to 75° F., then stir in one tablespoonful of sugar and one level teaspoonful of salt and a little flour; add one cake of compressed yeast mixed with a little cold water, knead in flour until of the consistency of bread dough, have the temperature 75° F., and let rise three hours, when it should be doubled in size. Then put in one tablespoonful of butter, mix well, let rise again; when light, roll on the board until one-half inch thick, then lift from the board and let shrink back all it will, and cut with a round or oval cutter. Press the thumb across the middle, and fold over like a turnover, having first brushed the edges with butter. Let rise one hour, and bake.

Loaf Cake.

For two cakes, take from the bread dough, when perfectly light and ready for the last moulding, three cups of dough, to which add two cups of white sugar, one cup of butter, two well-beaten eggs, one cup of chopped raisins, one teaspoonful of cinnamon, and a half teaspoonful of soda. Place the dough with other ingredients in an earthen bowl, and work with the hands until it becomes quite soft, then place in a well-buttered baking dish lined with white paper. Bake one and one-half hours in a slow oven.

Coffee Cake.

Take some bun dough and roll until about one inch thick, spread with butter, sprinkle bountifully with sugar and powdered cinnamon, let rise two and one-half hours, then bake in an oven a little cooler than for bread, and, when nearly done, dot with cooked fruit or jelly, or dust generously with sugar and powdered cinnamon, and dot with butter.

Bun Cake.

Use bun dough as on page 110, and when it has risen the second time roll about half an inch thick. Spread one-half thinly with melted butter, and sprinkle lightly with English currants and raisins chopped and seeded. Fold over, let rise and bake same as coffee cake.

THIN DOUGHS.

When a soapstone griddle is used, it needs no greasing. To grease other griddles, cut a piece of very fat salt pork about an inch and a half square, and leave the rind on it. Fix this firmly on a fork, provide yourself with a limber knife, and place a pie tin where these can be conveniently placed on it. Have a holder suitable for moving the griddle about on the range, and a clean cloth for wiping the griddle. The griddle must be freed from all bits each time it is used, and wiped to remove

crumbs. Do not use the dish cloth for this. When greasing the griddle, be careful to grease only the portion on which the cake will lie because more space than this cannot be used, and the fat will burn on the griddle, filling the room with unnecessary smoke. When cakes are mixed with water, add a little sugar, as this will aid in making a nice brown. When cakes are ready to turn on the griddle, the upper surface will be full of small bubbles, and the under surface a beautiful brown. Large bubbles should not rise at once to the surface of the griddle cake, as this indicates too hot a griddle, and the cakes will be inferior in flavor and appearance.

Soda and Baking Powder—How to Use.

Most quick breads are made light with either baking powder or sour milk and soda, but eggs are sometimes used for this purpose. Both soda and baking powder effervesce when a liquid is added. It is wise, therefore, to mix either soda or baking powder well with a small amount of the flour to be used. By so doing one may save as much as possible of the power which the soda or baking powder has to make the dough light, because, being mixed with the flour when the liquid comes in contact with it, the bubbles formed are imprisoned in the dough, instead of escaping into the air. The heat of the griddle or oven has much to do with the lightness of the finished product. If the heat is too great, the air or gas bubbles expand rapidly, and the walls break, making large holes, instead of a fine-grained bread or cake. Too hot an oven will cause great and rapid expansion, but the crust formed over the top is too heavy for the weak cell walls below to hold up, and the article falls, as is often seen in sponge cakes and omelets. If the oven is just the right heat, the cell walls and crust over the top will harden just when the cells are expanded to their limit, and the result is a light feathery mass, which remains so when cold. Too cool an oven will give disastrous results,

because the cell walls do not harden soon enough to prevent breaking, but too much heat is more frequently used than too little. The greatest heat should be at the bottom until the article is fully risen, but sides and top should be thoroughly browned when done.

In using soda, use one-half a level teaspoonful to one cup of pleasantly acid milk.

In using baking powder, use one level teaspoonful to one level cupful of flour, for most doughs; but for biscuits, dumplings and griddle cakes, use one and one-fourth teaspoonfuls to one cup of flour.

Popovers—For Home Work.

One-half teaspoonful of salt, one cup flour, one cup sweet milk, one egg, or one-fourth cup of egg white. Put half the milk into a small bowl, and add the egg and salt. Stir in flour until about right consistency for griddle cakes, then beat about ten minutes with dover beater, add the remainder of the milk, and having filled the muffin tins half full of the mixture, bake in an oven, same heat as for bread, forty-five minutes.

Popovers—For Class Work.

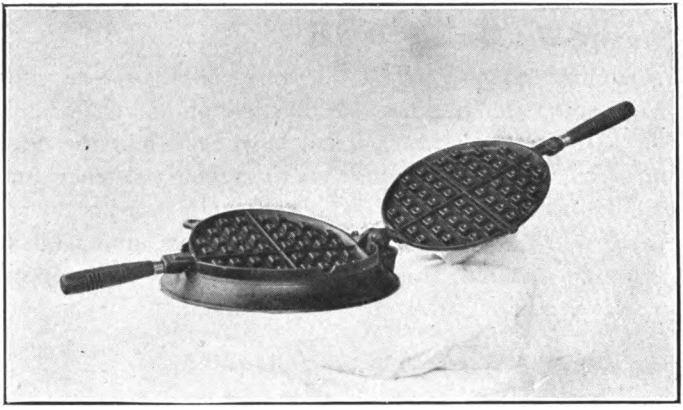
One-half cup of milk, one-half cup of flour, two tablespoonfuls of egg. Beat a whole egg just enough to mix so that a tablespoonful can be taken up. Put into a teacup in which a dover beater will turn, two tablespoonfuls of egg, one-fourth cup of milk, all the flour, a bit of salt, and beat well with the dover beater. Stir in the remainder of the milk and bake as above.

Waffles.

One egg, well beaten, one and one-half cups of milk, flour enough to make a batter same consistency as for pancakes, one level teaspoonful of salt. Cook on waffle irons.

French Pancakes.

Three eggs, one cup of milk, half a cup of flour, half teaspoonful of salt, one teaspoonful of sugar, two teaspoonfuls of olive oil. Beat the yolks of the eggs until thick and lemon colored. Mix the sugar and salt with the flour, and add the milk and flour alternately, same as in making cake, using twice as much milk as flour each time, and thoroughly incorporating the one before adding the next. When these are in, stir the olive oil into the mixture, and fold the well-beaten egg whites in carefully.



Waffle Iron.

Bake same as griddle cakes, butter, dust with powdered sugar, roll up, and serve hot. Clarified butter may be used instead of olive oil.

Wheat Griddle Cakes.

Three-fourths cup of sweet milk (generous), one egg, separated, one tablespoonful of melted butter, one-fourth teaspoonful of salt, one level cup of bread flour. Of pastry flour use a little more. Put the yolk of egg, salt, and one-fourth cup of milk in the bowl, add one-fourth cup of flour, and stir until smooth, using egg beater if

necessary. Add a little milk, and when thoroughly mixed add a little flour, and thoroughly incorporate that, and so continue until the flour and milk are all used. Beat in the butter, then fold in the beaten whites.

Griddle Cakes with Baking Powder.

Three-fourths cup of sweet milk, one tablespoonful of melted butter, one-fourth teaspoonful of salt, one level cup of flour, and one generous teaspoonful of baking powder. Put together same as above, leaving the egg out altogether, and save out two tablespoonfuls of flour. Mix the baking powder with this, and stir in last, beating well.

Griddle Cakes with Sour Milk.

Three-fourths cup of sour milk, one tablespoonful of melted butter, one-fourth teaspoonful of salt, scant one-half teaspoonful soda, three-fourths level cup of bread flour. Mix soda with a little flour, and beat in after the flour is used. Otherwise put together in the same manner as the one with baking powder and sweet milk.

Blueberry Griddle Cakes.

Make same as white-flour griddle cakes, and add one-half cup of blueberries (fresh). Before adding the blueberries, roll them in flour.

Whole Wheat or Graham Flour Griddle Cakes.

Make same as the ones with white flour, except use one teaspoonful of sugar to each cup of flour.

Graham Griddle Cakes—Class Work.

One-fourth cup of flour (half white and half graham), one tablespoonful of well beaten egg, one-fourth cup of sour milk, one-eighth teaspoonful of soda, (sifted with flour) and the same of salt, one-fourth teaspoonful of sugar, one-fourth teaspoonful of melted butter. Put flour and milk in alternately and beat well.

Wheat and Graham Muffins with Sour Milk.

One-half tablespoonful of butter, one and one-half cups of flour, one cup of sour milk, one-half teaspoonful soda, one-half teaspoonful salt. Take out two tablespoonfuls of the flour, put the butter and salt in the milk, add one-half the flour, and stir until smooth. Add the rest a little at a time, beating between. Lastly add the soda mixed in the two tablespoonfuls of flour saved out. Be sure that the soda is mixed, then beat it in very thoroughly. Have the oven hotter than for bread, and bake half an hour or more.

Wheat and Graham Muffins with Sour Milk.—Class Rule.

One-fourth cup sour milk, one-eighth teaspoonful of soda, one-eighth teaspoonful of salt, one-eighth tablespoonful of butter, one-fourth cup and two tablespoonfuls of flour. Make graham muffins the same except add one teaspoonful of sugar.

Whole Wheat Muffins with Sour Milk.

One and one-half cups of whole wheat flour, one level teaspoonful of sugar, two teaspoonfuls of butter, one-half teaspoonful of salt, one cup of milk just pleasantly acid, one-half teaspoonful of soda. Take out two tablespoonfuls of the flour, and put the sugar, butter, one cup of flour, and the milk together, and beat thoroughly. Add the remainder of the flour, a little at a time, beating well. Lastly add the soda, well stirred in the flour, and beat it in. Bake same as above.

Whole Wheat or Graham Muffins with Baking Powder.

One cup of sweet milk, one and one-half cups of flour, one-half teaspoonful of salt, one level teaspoonful of sugar, one generous teaspoonful of baking powder, one tablespoonful of soft butter. Put the milk, sugar, salt, and butter together, add flour enough to make a smooth batter, and beat well. Put the baking powder in a

tablespoonful of flour and set aside, put in the rest of the flour a little at a time, as in cake, beating well between, and lastly beat in the flour with baking powder, and bake half an hour in an oven a little hotter than for bread.

Hygienic Gems.

One cup of sweet milk, one and one-half cups of flour (graham or whole wheat), one level teaspoonful of salt, one level teaspoonful of sugar. Have the materials very cold. Mix and put at once into hissing hot iron gem pans, and bake in an oven hotter than for bread.

Hygienic Muffins.

One cup sweet milk, one and one-half cups of flour (graham or whole wheat), one teaspoonful of salt, one egg, separated. Put the milk, the egg yolk, and salt in a bowl, put in about one-half the flour, and stir it well, mix in the remainder, and fold in the beaten white. Bake in muffin pans in a moderate oven.

Wheat Muffins with White Flour and Baking Powder.

One and one-half cups flour, one cup sweet milk, one generous teaspoonful baking powder, one-half tablespoonful butter. Save out a little of the flour to mix with the baking powder, put the milk and butter into the mixing bowl, add one cup of the flour, and beat vigorously; then add the rest a little at a time, beating between, as in making cake; lastly put in the flour with the baking powder, and beat until thoroughly mixed. Bake in an oven a little hotter than for bread.

Rice Muffins.

Make same as above, except add one cup of rice cooked, cooled, and broken into separate grains with a fork.

Sally Lunns.

Milk, one cup; salt, one-fourth teaspoonful; eggs, one; sugar, one and one-half tablespoonfuls; butter, one-half

tablespoonful; flour, one pint; baking powder, two generous teaspoonfuls. Mix all together, putting the baking powder in a little flour. Lastly, turn onto the kneading board sprinkled with flour, and knead into shape. Bake in a loaf in an oven a little hotter than for bread.

Whole Wheat Muffins Raised with Egg.

One cup of sweet milk, one egg, one and one-half cups of flour (whole wheat), one tablespoonful of melted butter, one level teaspoonful of sugar, one-half teaspoonful of salt. Put the sugar, salt, flour, butter, and milk together, and beat thoroughly, then beat in with the spoon the yolk of the egg, which has been beaten in a small bowl with an egg beater until thick. Lastly fold in the beaten white, and bake in an oven same heat as for bread.

Batters made of whole wheat and graham flours require more beating than those from white flour.

Muffins with White Flour.

One cup of sweet milk, one and one-half cups of bread flour, one tablespoonful of soft butter, one egg, one-half teaspoonful of salt. Beat the egg yolk light. Put the milk, salt, flour, and butter with it, and stir and beat together. Lastly fold in the white, beaten stiff. Bake in about the same heat as for bread.

Biscuits with Sour Milk.

These are best shortened with sour cream, but if you have not that, use one cup of sour milk or buttermilk. and two cups of flour plus enough to roll the dough on the board. Two tablespoonfuls fat rubbed into the flour, one-half level teaspoonful of salt, one-half level teaspoonful of soda. Proceed as for baking powder biscuits (p. 119). Sift soda with flour.

Soda Biscuits—For Class Work.

One-fourth cup of sour milk, one-eighth teaspoonful of soda mixed in two tablespoonfuls of flour, one-half teaspoonful of fat rubbed into one cup of flour, one-

eighth teaspoonful of salt. Roll one-fourth inch thick, and bake fifteen or twenty minutes in an oven same temperature as for bread.

Baking Powder Biscuits.

Two cups flour (winter wheat more delicate), one cup milk, four level, or two generous, teaspoonfuls baking powder, one teaspoonful salt, two tablespoonfuls butter. Rub or put butter in the flour with a fork. Take out one-fourth of a cup of flour to mix with the baking powder. When the butter is in, mix the flour containing the baking powder with the rest, and mix milk and flour together with as little stirring as possible. Flour the board generously and knead as little as will make smooth. Keep well floured, roll to one-half inch thick, brush off surplus flour, cut out, and bake in an oven hot as can be to bake them half an hour without burning. Much depends on handling little and baking right. They must be very soft, and stirred and kneaded as little as will put them into shape. Make meat-pie crust in the same way.

Baking Powder Biscuit.—Class Work.

One-fourth cup flour, one-fourth teaspoonful salt, one-fourth teaspoonful fat, one-fourth teaspoonful baking powder, generous, two tablespoonfuls of water or milk.

BAKING IN DIFFERENT OVENS.

In order to be successful in baking, one must study the oven and know all its peculiarities. If it is hotter on the side next the fire box, procure a piece of tin, bend it into the required shape, and wire into place as a protection. If it is too hot on the bottom, set the iron shelf on the bottom, or put a layer of sand an inch deep in the oven, or use some other means to raise the article a little from the bottom.

An article of food to be risen in the oven, such as muffins, biscuits, etc., should begin to bake on the bottom first, because if baked on the top before the bottom, a

crust is formed which is apt to weigh down and make the food heavy, instead of light and fluffy, as it should be. To prevent too great heat on the top of the oven, sprinkle a little sand or some ashes over the top, or lay a piece of tin or sheet iron to fit on the iron shelf inside of the oven. When a range has been used for a time, it often ceases to be hot enough on the bottom and top. In that case, brush the ashes off from the top, and scrape them from the bottom with the iron which comes with every range for that purpose.

The following general rules will aid in learning to use ovens of different kinds of stoves and ranges:

In a hotel range, there is a fire between two ovens. In such ranges, the article to be cooked will do best on the bottom of the oven, provided the fire is right for baking, but if the ranges have been kept very hot for a long time in order to keep kettles boiling on the top, the ovens will become too hot, and a grate will be needed. In a brick oven, if well regulated by use of dampers, food will bake evenly in all parts of the oven, except very near the fire.

In an ordinary range in the home, the food will usually bake best on the bottom of the oven. In stoves which have ovens above the fire, as gas, gasoline, and kerosene stoves and ranges, the article to be cooked should be placed on the grate. The heat in such ovens is controlled by raising or lowering the flame, rather than by the use of dampers. When you can control the oven, see that the fire is such as to give right heat when you are ready to use it; but if you are compelled to use the oven when the stove is fixed for something else, set a pan of cold water in to cool it a little before putting anything in to bake. When the water is hot, take it out and put in the article to be baked. If cold water is put in after the article begins to bake, the heat is checked too suddenly, and the loaf is prevented rising as it should. If the hot water

is left in the oven, the steam will prevent the crisp crust liked by many. The oven door should always be closed gently. It is evident that the jarring caused by carelessness in this regard may break the delicate cell walls which surround the air bubbles.. These cell walls are swollen by the heat before they become hardened and set, and the omelet, cake, etc., will fall if jarred much.

How to Test the Heat of the Oven.

Expensive oven thermometers, such as are used on brick ovens and large bakers, have a long tube so that the mercury extends far into the oven. The dial on the outside thus registers the degree of heat at the center of the oven. The small, index thermometer used in the home range is inserted in the oven door (by drilling a hole through), and can extend but a short distance inward. Such a thermometer is some help, but must be carefully used, as it is intended to register a certain number of degrees, and when heated beyond that it is apt to be injured. It does not extend into the interior of the oven, and so is probably less accurate than the larger ones. Nevertheless, it is a benefit to the painstaking woman, as she can get a good idea of the heat of the oven without allowing it to escape by holding the door open.

For angel cake, sponge cake, pound cake, and kisses, have the oven so cool that it will require five minutes to turn a piece of white paper light yellow. For all butter cakes, have the oven so as to color the same kind of paper dark yellow in the same length of time.

For bread, have the oven hot enough so that there will be little specks of brown on the bread in ten minutes. For rolls, have the oven just a little hotter than for bread.

For pastry, have the oven as hot as you can without burning the article cooked. When the crust of a pie is cooked, lower the heat to allow the fruit to cook, if not already done.

Heat of Oven for Breads.

In baking bread and rolls, allow the heat to increase a little during the first twenty minutes. After that, let it decrease a little, but keep a good steady heat until the bread is done. The dough takes heat from the oven during the first half of the time; after that the dough is hot, and merely needs its heat kept up.

Baking powder biscuits, soda biscuits, and other articles of food which are made light by the gas liberated on heating an acid and an alkali in the presence of moisture, should have an oven as hot as possible without burning the article baked. Gems and such things as have no leavening agent, but depend on the expansion of the cold liquid and air beaten into the flour, should have an oven nearly as hot. When things have risen, the heat should decrease a little to bake them through.

References: Science & Art of Bread Making—Jago—pp. 362, 363.

CHAPTER X.

MAIZE OR INDIAN CORN.

The Indians made much use of maize, and whether it is a native of Mexico, Central America, or Northern South America is not definitely known. It may have been indigenous in all these regions. There is evidence that it has long been under man's influence. The specimens of minature ears, only three or four inches in length, which were the mute associates of the Cliff Dwellers and Peruvian Mummy relics on exhibition at the World's Fair, give evidence of an early history. We have interesting stories of how the Indians preserved the flavor of the corn by thorough drying in the ear, and then shelling, and again drying before a fire, or in the hot sun, to expel all the moisture before storing in caches or holes in the earth. It is difficult to understand how it could be sufficiently protected by mats to prevent it absorbing moisture from the surrounding earth when stored in this way, though of course dry places were chosen for the caches. There are many varieties of corn of each of the four general classes,—the flint, the dent, the sweet, and the pop corn. We see by the table herewith that the flint and the dent corn have practically the same chemical composition.

By using varieties of one or the other of these classes, corn can be successfully grown in every state in the Union. The flint and pop varieties flourish in the cooler climate of the northern corn belt, while the dent and the larger sweet kinds prefer the milder climate farther south. It is said that climate exerts a marked effect on the variety of corn, and that flint corn, when planted

farther south, will gradually become larger and later in maturing. As to which is more nutritious, the yellow or the white corn, no definite distinction can be made. Both chemical analysis and experience have failed to find the one or the other uniformly better. Some varieties of one are found superior to certain varieties of the other.

	No. of Analyses	Water	Ash	Protein	Crude Fiber	Nitrogen Free Extract	Fat
Corn, dent	86	10.6	1.5	10.3	1.2	68.6	4.6
Corn, flint	68	11.3	1.4	10.5	1.7	70.1	5.0
Corn, sweet	26	8.8	1.9	11.6	2.8	66.8	8.1
Corn, pop	4	10.7	1.5	11.2	1.8	69.6	5.2
Barley	10	10.9	2.4	12.4	2.7	69.8	1.8
Oats	30	11.3	3.0	11.8	9.5	59.7	5.0
Rye	6	11.6	1.9	10.6	1.7	72.5	1.7
Wheat, spring	13	10.4	1.9	12.5	1.8	71.2	2.2
Wheat, winter	262	10.5	1.8	11.8	1.8	72.0	2.1
Wheat, all varieties	310	10.5	1.8	11.9	1.8	71.9	2.1
Rice	10	12.4	0.4	7.4	0.2	79.2	0.4
Buckwheat	8	12.6	2.0	10.0	8.7	64.5	2.2
Cornmeal	77	15.0	1.4	9.2	1.9	68.7	3.8
Oatmeal	6	7.9	2.0	14.7	0.9	67.4	7.0
Barley meal	3	11.9	2.6	10.5	6.5	66.3	2.2
Rye flour	44	13.1	0.7	6.7	0.4	78.3	0.8
Wheat flour	20	12.4	0.5	10.8	0.2	75.0	1.0
Graham flour	3	13.1	1.8	11.7	1.9	69.8	1.7
Buckwheat flour	4	14.6	1.0	6.9	0.3	75.8	1.4

Analysis of Foods—Compiled by Jenkins & Winston. Hand Book, Experiment Station Work.

Among domestic animals, corn holds a place similar to that conferred on wheat by the human family. To them it seems to be the most palatable and is the strongest in fattening qualities of all the cereals. The reason for this liking may be that they find greater pleasure in eating the hard corn, which breaks up into little hard particles, and gives opportunity for much mastication. The wheat grain makes a sticky, unpleasant, doughy mass when crushed in the mouth. Chemical analysis shows that corn carries much nutrition. The market price is usually low. For these two reasons, corn is by far the cheapest food for man over much of the civilized world. Why is it not more generally used for food?

The composition of cornmeal is given in the preceding table. The following cut from New Jersey Bulletin No.

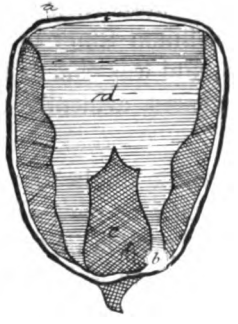
105, may aid in fixing in the mind the relative amounts of protein, starch, mineral matter, oil, etc., contained in the whole grains of corn before milled.

a is the outer covering of the grain of corn, or bran. This consists of two layers and constitutes practically all the crude fiber of the grain.

b is a layer of gluten cells which lies next the bran. This is usually yellow in color.

c is the germ. This is rich in oil and mineral matter and contains some gluten.

d is composed largely of starch.



Kernel of Corn.

Corn contains a smaller amount of proteid matter than wheat, and its gluten is of a very different quality. It is not possible to make so porous a loaf from cornmeal as from wheat flour. Corn bread is to most persons more palatable when hot than when cold. In wheat, the parts which affect the keeping qualities of the flour can be very completely separated out in the milling by removing the aleurone cells and the germ of the wheat. The germ is removed from the corn in the process of milling and this takes out most of the oil, the germ containing sixty-five per cent. of the fat contained in the entire grain. The remaining oil is so distributed as to be inseparable, and the meal does not long retain its most perfect flavor.

Young and growing children should not be fed too largely on corn products. These lack the mineral matter necessary to bone formation. They have not a sufficient amount of protein to build up the growing muscles. By elderly people and people of sedentary habits corn can be partaken of more freely with good results. Among the people of the rural districts of northern Italy, a disease known as "pellegra" prevails. This disease is believed to be caused by the exclusive use of corn as a food by these people. The corn plant in Italy is not free from disease, as ours in this country is. Some claim that the sickness brought on from the use of corn as food is due in part to the presence of a fungi. Two authorities state "that Fua found aspergillus and penicillium fungi in the cornmeal which had caused pellagra, and was able to separate from it several poisonous substances, evidently decomposition products."

Corn is not so good a single food for man as wheat, nor for domestic animals as oats. But for either it is a very cheap and useful portion of the ration, especially if there are foods to use with it which have an abundance of protein and mineral nutrients. Man has done all in his power to so mill this product as to furnish it in the best form, with the best possible keeping qualities. Woman's part is to see that it is so cooked as to render its nutritive qualities most available for human needs. Man urges her to attend to this one thing which remains necessary to make corn form at least a part of our diet of every-day life.

A very large amount of corn is used each year in the manufacture of starch, glucose, beer, spirits, etc. Cornstarch is used to some extent for human food, and very largely for laundry purposes, and for sizing in the manufacture of cotton textiles and paper. The processes by which starch is manufactured from corn vary somewhat, but are essentially as follows: Mature corn is used for

the purpose. The germ and hull are separated from the rest of the grain either by machinery or by soaking the grain in warm water, crushing into medium-sized particles, and separating by gravity. The hulls float, and the germs sink. The water flows on, carrying with it the starch and the gluten. The gluten is lighter than the starch, and thus the two are afterwards separated. The parts of the corn which cannot be utilized for either starch or glucose are called by-products, and are used for stock. They have a high feeding value. The refuse contains the protein, fat, and mineral matter of the corn grain. When hominy and other cereals are manufactured from corn, the skin and germ form practically the by-product, the proteid in this case being largely preserved as part of that designed for human food.

The green succulent ears of the varieties of sweet corn are very tempting, and judging from the great and increasing demand for the various forms of green corn, woman's skill is not lacking in preparing it for the table. Immense amounts pour into our cities during the summer for immediate consumption.

Green corn is brought north from the southern markets about the first of June. In the middle states a favorable season makes it ready for use about the middle of July. In the New England states it comes into the market about the first of August. A succession of crops keeps it procurable until the middle of October, or even later. In the use of this luxury, as in many other instances, farmers have a decided advantage over their city cousins. Green corn, to be at its best, should have attained the full size of its kernels. At this stage it is said to be never unwholesome. It soon deteriorates in flavor, and should always be eaten on the same day that it is picked. By the second day, it has lost much of its flavor, and is no doubt less wholesome, if not less digestible. Farmers usually raise a supply of sweet corn

for home consumption, in addition to what is marketed, so that, both in amount and value, sweet corn forms an important item in farm produce. Sweet corn is very largely preserved, both by canning and drying. The work is so successfully done that much of the flavor of the fresh corn is preserved. This not only pleases the palate, but aids in preserving good health by answering one of the demands of nature for a variety of food during the long winter months. Sweet corn, as seen in the table, is somewhat richer in protein than the common field corn. It has less carbohydrates, but a greater amount of fat and protein. It owes its sweetness while ripening to glucose. This adds to its palatability, but in nutritive qualities it makes practically no difference, as sugars and starches have about the same food value.

Again referring to the table, we find that pop corn does not fall below field corn in any of the food elements. Unfortunately, pop corn has fallen into bad usage. If it were taken at meal time, the system might gain something from its nutritive qualities. When taken between meals, it can only be classed among those foods which, eaten in excess of what is needed, are worse than thrown away. Such practices are very injurious to health.

Why should not white men, representatives of a civilized race, teach the Indians how to use corn to better advantage as food,—this native plant, which their legends say is a gift from the Great Spirit? Why does the government continue to place a premium upon its misuse? Some years ago the following appeared in one of our western papers:

"Corn in Nebraska sells for twenty-five cents a bushel. This, distilled, makes four and one-half gallons of spirits. After being manipulated by the distilleries, this makes nine gallons of whiskey. This pays the United States government ninety cents a gallon, which is a revenue of eight dollars and ten cents from one bushel of corn."

They might have added, this practice takes every semblance of manhood from many an American citizen. It makes him a disgrace to his kind in this world, and leaves him without hope in the next.

If, as some claim, a better knowledge of how to select food and prepare it will help to abate this misery, let woman regard it not only a duty, but a pleasure, to gain all possible information on this subject, and not only this, but, having acquired that knowledge, let her be untiring in putting it into practice, and bringing it year by year to still greater perfection.

Corn is the basis of America's supremacy in pork, beef, and mutton, and does much to add to our fame as a dairying nation. American corn would add vitality to rice-eating China and India. American corn is best exported in the forms of juicy steaks, legs of mutton, sides of bacon, and tubs of golden butter; but while it is so cheap in America, it is extravagance not to use more of it on our tables. There are fewer persons who understand the secrets of corn cookery than there are of those who can handle wheat products successfully. Every mother and every cook should know how to make a variety of breads, pones, puddings, mushes, and cakes of this truly American food. Let us use it more, and our European visitors will carry home with them an acquired taste for it. Let wives give it to their husbands when hunger brings a good appetite, that they may learn to enjoy it. Let our schools teach of its use, since it is the most neglected cheap food in America.

Since corn is not an entire food, and is peculiar, when used in large quantities, because of engendering a heated or feverish condition of the body and producing fat, it has been wrongfully discredited. It is not adapted to the whole ration, but with vegetables, meats, and milk it is adapted to a larger place in the ration than it now occupies. As one-fourth of our food, cornmeal has no

competitor in cheapness, and this is a most important consideration with our common people. Corn is produced throughout the west annually at twenty cents per bushel, or seven dollars per ton. Wheat costs nearly or quite three times as much per ton to produce,—sixty cents per bushel, being twenty dollars per ton.

Statistics show that wheat is only a little more valuable from either the standpoint of total nutrients or of protein compounds. Bread has won our hearts because of its dainty white loaves, and our theories and sentiments have rightly crowned wheat the queen of the cereals; but corn is king. The poor of the cities, the farmers and laboring classes everywhere, should be taught to use more of it. The great problem is how to cook it so that the flavor and appearance will make it attractive. This, accomplished among our home consumers, will save millions now spent for more expensive foods. Accomplish this in our export countries, and much will be done for our farmers who produce American corn. I know of no more emphatic statement with which to emphasize the main reason for the wider use of corn than that corn is too cheap to be adulterated.

Possibly, many of our people do not use corn because its cheapness causes it to be reckoned common, and adapted to those who cannot afford suitable food. Fashion often makes us foolish.

Reasons for Scalding Cornmeal before Using.

We soak dried beans, dried corn, dried fruits, etc., to restore as far as possible their former moisture. Corn is so very hard and flinty that soaking in cold water has little effect, and the particles remain hard, even after the bread is baked. How is it with corn mush? The particles are softened, and the starch cells broken and ready to be acted upon by the gastric juices. The reasons then, in short, are to soften the hard, flinty particles, so that the digestive fluids may readily act upon them, and to so prepare the corn that the best flavor will be brought out

in cooking. All starches need very thorough cooking. Cornmeal should be scalded and allowed to swell before making into bread of any kind, if one wishes to have the finest flavor possible.

Corn Griddle Cakes with Egg.

One cup granulated cornmeal, three-fourths cup boiling water, one egg, one teaspoonful sugar, one teaspoonful salt, one tablespoonful flour. To make corn griddle cakes, fill an earthen bowl with boiling water, and put the measuring cup and the wooden spoon in the bowl. Measure all the dry ingredients, except soda or baking powder, and put with the measured meal. Turn the water from the bowl, put the meal into it, and pour the boiling water on the meal; then stir, and see that the meal is thoroughly mixed. Cover and let set half an hour, when it should be about cold. Put the yolk of the egg in, and stir until thoroughly incorporated, put in enough cold milk to make the batter as thin as it can be without running over the griddle, then fold in the well-beaten white.

In some cases one can use as much boiling water as cornmeal, in other cases the meal will not absorb so much water. A larger amount of flour may be used than is given in the above formula, but the cakes are more delicate with little flour.

In serving griddle cakes, it is better never to pile them, because they lose some lightness by such treatment. In putting them on the griddle, put on a little, then put more carefully on this. You can thus have the batter much thinner than if a large quantity is put on at once.

Corn Griddle Cakes with Baking Powder.

One cup granulated cornmeal, three-fourths cup boiling water, one teaspoonful sugar, one teaspoonful salt, one tablespoonful flour, one teaspoonful baking powder (generous). Put the baking powder and the flour aside, then proceed as in corn griddle cakes with egg, and

beat in the baking powder and flour, thoroughly mixed, at the last.

Corn Griddle Cakes.—Class Rule.

One-fourth cup of cornmeal, one-fourth cup of boiling water, three tablespoonfuls of flour, one-fourth cup of milk, one-fourth teaspoonful of baking powder, one-fourth teaspoonful of sugar, one-fourth teaspoonful of salt, one teaspoonful of egg (well beaten).

Corn Griddle Cakes with Sour Milk.

Proceed in the same manner as for griddle cakes with baking powder, except, instead of the baking powder, mix with the flour one-half teaspoonful of soda for every cup of sour milk used.

Corn Muffins with Egg.

One cup granulated cornmeal, three-fourths cup boiling water, one level teaspoonful sugar, one level teaspoonful of salt, one egg. Proceed exactly as for corn griddle cakes, except put in just enough milk so that the dough will settle into place in tins. Bake in shallow iron gem pans in an oven about the same heat as for bread.

Corn Muffins with Baking Powder.

One cup granulated cornmeal, three-fourths cup boiling water, one teaspoonful baking powder (generous), one level teaspoonful sugar, one level teaspoonful salt, one tablespoonful of flour. Proceed in same manner as for corn griddle cakes with baking powder, except make the batter less thin, having it just so it will settle into shape over the top.

Corn Muffins—For Class Work.

One teaspoonful of beaten egg, one-fourth cup cornmeal, one fourth cup of boiling water, three tablespoonfuls of flour, three tablespoonfuls of milk (sweet), one-fourth teaspoonful of baking powder (generous). Have cups, bowl and spoon very hot, pour the boiling water over the

meal in the hot bowl and stir well; add the milk a little at a time, then the egg and salt, then the flour with the baking powder sifted with it, stir well and bake in a moderately hot oven from twenty-five to thirty minutes. Serve hot.

Corn Muffins with Sour Milk.—Class Rule.

Same as the preceding, except use sour milk, and one-fourth teaspoonful soda to one-half cup of milk, instead of using sweet milk and baking powder.

Blueberry Muffins.

Make same as corn muffins, except add one-half cup of blueberries (floured) for each cup of cornmeal used. Add berries to batter when ready to bake.

Corn Gems.

One pint of cornmeal, one and one-half cups of boiling water. Stir together until smooth and cool, then stir in two well-beaten eggs. Put in sweet milk enough to make the right consistency. If the gems are thin, they will bake in twenty minutes.

Corn Gems (with White Meal).

One pint of meal, three-fourths pint of boiling water, three-fourths pint of sweet cream, two teaspoonfuls of sugar, one teaspoonful of salt, two eggs, well beaten, two teaspoonfuls of baking powder. Put together and bake same as above.

Steamed Corn Bread.

Use either sweet or sour milk, two cups of cornmeal, one cup of white flour, three cups of sour milk, two level teaspoonfuls of salt, one-fourth cup of shortening, one-fourth cup of sugar, one and one-half level teaspoonfuls of soda. Mix the flour, sugar, cornmeal and salt together and stir into the sour milk. Melt the shortening and stir that in very thoroughly. Lastly add the soda mixed with a tablespoonful of flour and see that it is well mixed with

the other. Put into a greased pudding mold and steam three hours. If sweet milk is used, leave out the soda, and add three level teaspoonfuls of baking powder instead of the soda.

Nut Bread.

Two and one-half cups of flour, half white and half whole wheat flour, three level teaspoonfuls baking powder, three-fourths cup English walnuts (chopped), two level teaspoonfuls salt, one and one-half cups of sweet milk. Mix the flour, baking powder and salt thoroughly, then add the nuts and stir them well through, add the milk and stir just enough to mix. Put into greased pudding molds and steam three hours, or bake in shallow gem or muffin tins half an hour.

Corn Bread No. 1.

One pound butter (two cups), one pound sugar (two cups), one pound flour (four cups), one pound cornmeal (three cups), one quart milk (four cups), four eggs, two tablespoonfuls of baking powder. Rub the sugar and butter together, add the milk, then stir in the flour, meal and baking powder which have been thoroughly mixed. Fold in the well-beaten eggs and bake in a moderate oven until well browned.—Mrs. James.

Corn Bread No. 2.

One cup granulated cornmeal, three-fourths cup of boiling water, one tablespoonful butter, one teaspoonful sugar, one teaspoonful salt, two eggs, one-fourth cup of flour. Make the same as corn muffins with egg, except the flour, which stir in just before the egg yolk, and fold the white in very carefully.

Cornbread with Baking Powder.

Make same as corn muffins with baking powder, except add one-fourth cup of flour.

Cornbread with Sour Milk and Soda.

Same as above, except use sour milk instead of sweet, and one-fourth teaspoonful of soda to each one-half cup of milk.

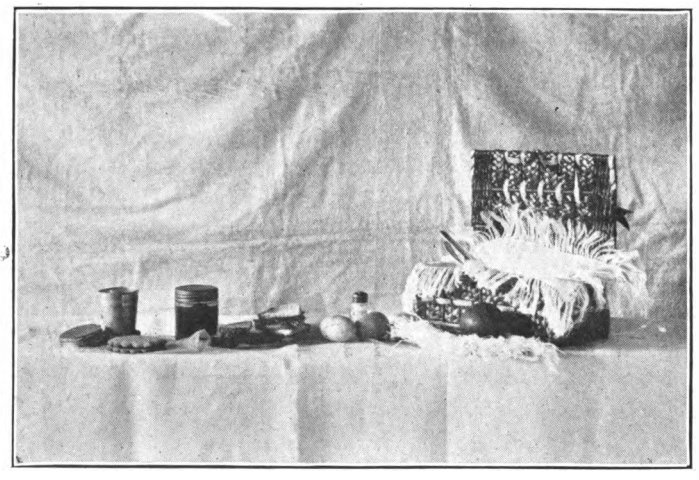
Steamed Brown Bread.

Two-thirds of a teaspoonful of salt, one cup of milk, one-third of a cup of sorghum molasses, two-thirds of a cup of graham flour, one cup of cornmeal, one teaspoonful of baking powder, one-third of a cup of raisins and currants mixed. Put together in the order given, and put the fruit between layers of the mixture. Steam three hours.

CHAPTER XI.

LUNCH BASKETS.

The lunch basket should have sufficient bottom surface to allow sandwiches, etc., to lie without piling. It should be sufficiently roomy to admit of a glass for water, as neither the child at school nor the man at his work should drink from a public cup. There should be room



Child's Lunch Basket.

for a small plate, as a piece of pie, even though not always best for the stomach, makes a pleasant variety at times.

Whether a basket or a tin pail is the better receptacle, let each person decide for himself. The lunch must be protected from dust, and if a basket is used, there is necessarily an extra napkin about the lunch to prevent

evaporation, as well as to protect from the dust. A tin pail often causes an unpleasant combination of flavors if the lunch stands long. Sandwiches necessarily form a portion of all lunches, and they keep far better when wrapped in paraffine paper. The aim should be to give some substantial sandwiches and some daintier ones each day. A variety should be given on different days. Fruit of some kind should always form a portion of a lunch. For children's lunches, the cake used should be something simple, as sponge cake, ginger bread, etc.

Such vegetables as can be carried, as celery, lettuce, tomatoes, and radishes, accompanied only by a little salt, are often relished by children. The first two vegetables make sandwiches which are enjoyed by both adults and children.

SANDWICHES.

Use the best bread for making sandwiches. Cut a thin crust from the end of the loaf, and butter the cut surface before cutting off a thin slice. Warm the butter a little, that it may spread without tearing the surface of the bread. Use whole wheat, graham, or white bread, as preferred. Leave the slices plain, simply cutting in the center and folding over, or cut in fancy shapes, as desired. The crust may be removed on special occasions, but it is usually better to leave the crust on, both from an economical and a hygienic standpoint.

Lettuce Sandwich.

Butter thin slices of bread, lay a lettuce leaf on each, and on one-half spread cooked mayonnaise dressing, made as on page 285, and seasoned with three-fourths of a teaspoonful of mixed seasoning (No. 1) to one cup of the dressing. Lay the other lettuce leaf on this, and the other slice of bread on top of that.

Water Cress Sandwich.

Make same as lettuce sandwich, except use water cress instead of lettuce.

Salad Dressing for Lettuce Sandwich.

Use equal parts of cooked dressing (with a large quantity of butter) and whipped cream. Season to taste with mixed seasoning.

Ham Sandwich No. 1.

Hash scraps of ham very fine, using one-fourth as much fat as lean. Season to taste with made mustard. Butter thin slices of bread, and spread with the ham.

Ham Sandwich No. 2.

Mince bits of ham fine, season salad dressing same as directed for lettuce sandwiches, mix with the ham and spread between slices of buttered bread.

Plain Meat Sandwich.

Cut cold meat very thin, and lay between slices of buttered bread.

Mustard Sandwich.

Chop cold meat very fine, and moisten with mustard made to use with cold meats, and spread between slices of buttered bread.

Picnic Sandwich.

Bake plain rolls of bread dough. Cut a circular piece from the end, and take out the crumb. Fill the cavity with minced chicken or ham, moistened with salad dressing, and return the piece cut off.

Cottage Cheese Sandwich.

Butter thin slices of bread, and spread with cottage cheese.

Lettuce and Cheese Sandwich.

Butter thin slices of bread, lay a lettuce leaf on the slice, place on this some cottage cheese, then another leaf of lettuce, then another slice of buttered bread.

Cheese Sandwich No. 1.

Butter thin slices of bread, and between the pieces lay thin slices of cheese.

Cheese Sandwich No. 2.

Spread thin slices of bread with butter, then sprinkle thickly with grated cheese. Put the slices together, and cut in any shapes desired.

Celery Sandwich.

Wash crisp, white celery, wipe dry, and cut into small pieces. Mix with the same kind of salad dressing as directed for lettuce sandwiches, and spread between the buttered slices.

Celery and Nut Sandwich.

Make same as celery sandwich, except add one-third as much chopped English walnuts as there is chopped celery.

Egg Sandwich No. 1.

Butter thin slices of bread, and spread between them hard boiled eggs chopped and moistened with white sauce (page 53), seasoned with salt and pepper.

Egg Sandwich No. 2.

Remove the shells from hard-boiled eggs. Chop the eggs very fine, or press through a potato ricer, moisten with cooked salad dressing (page 285), seasoned with one teaspoonful of mixed salad seasoning (page 287) to each cup of dressing used. Spread the mixture on thin slices of buttered bread.

Egg Sandwich (with Lettuce) No. 3.

Place a lettuce leaf on the buttered bread, spread this with the prepared egg, place another lettuce leaf on it, and then the other slice of buttered bread.

Egg Sandwich No. 4.

Hard boil the eggs. Remove the shells, hash, season with pepper, salt, and a little butter, spread on thin slices of buttered bread, and lay together.

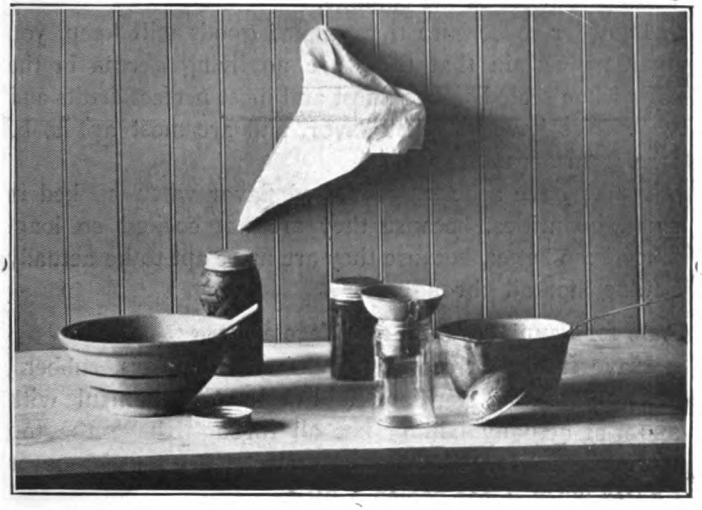
Sardine Sandwich.

Mince the desired quantity of sardines, and mix with one-third the quantity of ham chopped. Moisten with made mustard (page 495). Spread thin slices of bread with butter, and spread the mixture on the bread. Put two slices together, and cut in any form.

CHAPTER XII.

CANNING.

Use a granite or porcelain kettle for cooking all acid fruits and vegetables. A wooden spoon is best for stirring.



Canning and Jelly Making.

The first thing necessary is to prepare the cans. Wash them thoroughly with soapsuds, and, if need be, boil them in lye water. When jars and covers are perfectly clean and free from odors, fit each jar with cover and rubber, and let stand upside down with water in, that you may be sure they do not leak. When they are fitted, keep them together until they are used, but do not put covers on the jars as they are apt to smell when opened. When sugar is used in fruit, it should be put in just long enough

before sealing to be melted, as it loses sweetness by cooking with fruit.

Both vegetables and fruits for canning should be perfectly mature, but not over ripe. They should be free from blemish, and cooked and canned as soon as possible after picking. After they become mature, they soon begin to deteriorate.

Prepare to take each fruit and vegetable when in season, and at its best. When getting ready for a day of canning, try to can the most perfect, and make marmalades or butters of the cullings.

In order to be sure that canned goods will keep, you must be certain that there are no living germs in the cans when sealed. The finest and most perfect fruits and vegetables have the best flavor, and are most apt to be free from germs.

Fruits have a better color and flavor when cooked in small quantities, because they are not cooked so long. They keep better, because they are more apt to be actually boiling hot all through.

Rule for Canning Fruits and Vegetables.

Have fresh, perfect fruit. Be sure that jars, rubbers, and covers are sterilized and hot. Fill brimful with material actually boiling hot all through, have the top edge of the can clean, seal tight, and screw the cover tighter when it has cooled a little.

Pieplant is the first of the fruit kind to appear in the spring, and, on account of its pleasant acid taste, it is not unwelcome through the winter in shortcakes, pies and marmalades.

To Can Pieplant.

Wash the stalks of pieplant, and, if old enough to have a tough skin, peel. Cut in pieces, and cook in a small amount of water until soft and thoroughly heated through. Sweeten or not, as you like, as this makes no difference with its keeping. Have a large pan of hot water on the

stove, with an iron rack in the bottom of it for the cans to lie on. Let the water extend at least half way up the cans. Have the water boiling, and put the cans in it, each one with its rubber on, and its cover by its side. Lay the cans in the water so that water will be inside and out. When the fruit is cooked (in a separate kettle), raise a jar, empty the water into the pan, fill within half an inch of the top, wipe the edge clean, and finish filling to the brim with boiling water. Take the cover from the hot water, screw it on, and set the jar on a wet towel out of the draft. As it cools, put the cover down a little if you can. Be sure that the cans, as well as covers and rubbers, are sterilized, the contents boiling hot, and the covers on tight, for it is on these things that success depends. Pieplant may be cut into pieces, packed in jars that have been sterilized and cooled, and the contents then covered with water which has been boiled and cooled, and it is pretty apt to keep, if the work is done quickly, and the jar sealed at once; for the only chance for germs is on the pieplant itself. Pieplant may be also cut into pieces, put in hot sterilized jars, covered with boiling water, put in a pan of water in the oven, with support for the jars, and the covers screwed on after it is cooked some, but not enough to fall to pieces. This will look prettier than when broken up in cooking.

When fruit is scarce, some pieplant should always be canned while it is still young and tender. One part of pieplant with two parts of plums makes a fine-flavored fruit butter. Apples may be successfully mixed with pieplant in the same way.

To Can Soft Berries, as Raspberries and Dewberries.

You may cook and can them same as pieplant, and this is best for all general purposes, but they are prettier when packed in sterilized jars, set in water on a rack, heated until the juices run freely, then the cans filled with boil-

ing syrup, and sealed. To be certain that the juice and syrup mix well, tie a piece of cheesecloth over the neck of the jar, decant the liquid, boil and pour on again and seal.

Canning Fruits Without Cooking.

Sugar is a preserving agent, and some fruits may, with its aid, be canned and kept without cooking. Currants are often so put up for use with meats. Crush the fruit, and be sure that not a berry escapes, and mix thoroughly with an equal amount of sugar. Fill sterilized jars brimful and screw covers on tight.

To Can Peaches and Cherries.

If the peaches are very soft, they may be cooked in a syrup to prevent breaking. The sugar will harden the fruit, but will lose some of its sweetness. Both peaches and cherries have a better flavor when some pits are cooked with them. These take up room in the cans, of course. The peach pits should be cracked before cooking.

Cherries may be canned whole in same manner as berries.

To Can Peaches and Pears Whole.

Pare the fruit carefully, to leave as smooth a surface as possible, and cook in syrup until tender. Then put carefully and compactly into the sterilized jars, strain the liquid over, fill to the very brim, and seal.

To Can Corn.

Select ears of corn in the perfect roasting-ear stage, and with a sharp knife score each row of grains, cut a very thin slice from the ends of all the grains, and with a kitchen knife scrape the rest off the cob. For each quart of corn, put into the kettle a pint of water and half a tablespoonful of salt, put the corn to cook, and add more boiling water as it evaporates. Let it cook for fifteen or twenty minutes after it actually boils all through. Watch and stir with a wooden spoon to prevent burning, but

do not allow to stop boiling. When it has actually boiled twenty minutes, fill the jars to within one-half an inch of the top, cram down with the spoon to prevent air bubbles through it, finish filling with boiling water, and seal according to rule. May cook corn in jars, but it is difficult to sterilize in center of jars, and it will spoil unless perfectly sterile. It must be cooked in the jars not less than four hours.

To Can Peas.

Pick the peas just before using. Shell, cook half an hour, and salt same as for the table, put into sterilized jars, and seal.

Or, put the peas into the cans, fill with water, add salt, as for eating, put covers on loosely, and cook in boiling water four hours, and seal as before. The first are more apt to keep well.

To Can String Beans.

Choose, prepare, and cook as for the table, except to season with salt only, and seal according to rule.

Directions for canning often say "cook in the cans in hot-water bath." This is well if the cooking is done thoroughly, but it is difficult to cook thoroughly unless a very long time is allowed. The center is often not boiling hot.

To Can Tomatoes.

Tomatoes are easily canned, and their acid, pleasant taste adds much to the winter fare. To can tomatoes, gather ripe, red tomatoes, and prepare them as for serving raw. Put to cook in a porcelain lined or granite ware kettle, and boil until absolutely certain that every particle in the kettle is boiling hot. While these are cooking, see that the covers and rubbers fit the cans by trying them with water. Let covers, rubbers, and cans stand immersed in boiling water until ready to use them. Pour the tomatoes boiling hot into the hot cans, on which

the rubbers are fitted. Fill brimful, and screw on covers. Turn the jars upside down, wrap in a wet cloth, and let stand until cold. Screw the covers down tighter as they cool. When cold, set in a cool, dry place. Do not allow to freeze.

To Can Tomatoes Whole.

Select perfect medium-sized tomatoes. Fill the jars with them, after sterilizing the jars and washing the tomatoes. To each quart of tomatoes put one tablespoonful of salt, fill the jar with boiling water, and seal.

Or, scald and pare the tomatoes, fill the jars with them, pour in boiling water half way up the side of the jar, set in a pan in the oven on rack, and when thoroughly heated, but not falling to pieces, fill to the brim with boiling water, and seal. These are nice for special dishes, but too much trouble for every-day use.

FOOD PRESERVATIVES.

Salt and sugar have been used as preservatives, one might almost say, since time immemorial. Smoke, and a small amount of heat, as in making bacon, might be listed among preservatives.

The word "preservative," as now used, means powders used for keeping fruits, meats, milk and other food in a fresh condition. These preservative powders ars sold under many different names, but each usually contains some chemical which is injurious to health. Borax, boric acid, salicylic acid, and formalin are the chemicals generally used. A preservative may contain one or more than one of these.

There is no reason why foods should not be preserved in the household by those good old methods practiced by

References: Common Sense in the Household—Harland—pp. 463-467; Parloa's Kitchen Companion, pp. 84-90, 827, 834-846; The Art of Cookery—Ewing—pp. 163-165; Food Products of the World—Green—pp. 35-37; Boston Cook Book—Lincoln—pp. 401-403; Elements of Cookery—Williams & Fisher—pp. 282-286; Ann. Rep. Minn. Exp. Station 1899, pp. 516, 517.

our forefathers. Drying and canning fruits and vegetables, salting and smoking meats, and either sterilizing milk, or subjecting it to sufficient cold to prevent its souring in a reasonable length of time. Such methods of preserving are effective, and the products are wholesome, but the preservatives sold and used are very generally harmful.

FRUIT SAUCES.

In order that a food material may do its best work, it is essential that it be as free as possible from all impurities. This is especially true of such as are eaten raw, as green apples and other fresh fruits. Such food should always be sound and mature.

While undeveloped or impure foods may cause injury, proper selection and preparation of foods will often do more toward relieving aggravated forms of dyspepsia than the most skilled physician is able to accomplish by any other means. The ambition of a good cook is to become so proficient in the art of selecting and preparing foods as to understand which ones, when cooked, will best subserve the purposes of the body; and then prepare them in such a way that they will retain all their nutrients, giving the consumer the full benefit of the food he eats. Fruits should never be cooked in a vessel of tin or iron. Both the color and the flavor of the acid fruit thus cooked will be injured. A wooden spoon or a paddle is best for stirring such foods, as wood is not acted on by the acid of the fruit. The color which the fruit gives to both spoon and vessel can be removed by immersing in boiling water before washing in soapsuds. A dust of salt added to almost any fruit while hot emphasizes the flavor. Great care must be exercised that an over amount of neither sugar nor salt be added, for the object is to bring out the flavor of the fruit, without a hint of the presence of anything else. Sugar should be added to

References: Ann. Rep. Minn. Exp. Station 1899, pp. 507, 508.

the fruit just before removing from the fire, because, if the sugar is heated with the fruit any length of time, it loses much of its sweetening power. Cooking the fruit after the sugar is added tends also to harden the fruit.

Most farmers can raise a sufficient quantity of grapes for family use with little trouble. We might all well echo Mr. Gladstone's advocacy of the extension of fruit culture: "We shamefully neglect the best of all food in using so little fruit." It is possible to have at least cooked fruit during the long winter, when there is a dearth of green vegetables. Fruit is not a luxury, but it is necessary to the continued good health of our families.

Grapes are easily handled, since they will jelly when not fully ripe, or after they have lain in cold storage for weeks. They are an economical fruit because, after the juice has been strained out, the remaining portion may be put through a sieve and made into butter of very good quality. The skins and seeds are all that are lost, and these would not be digested if eaten.

In most sections of our country, apples can be cheaply grown. Apples not only keep long in good condition, but have a flavor which is not impaired after the fruit has been stored for many months. They can be successfully canned or dried, and thus preserved for all seasons of the year. This fruit is such a universal favorite, and its free use aids so much in keeping the body in good condition, that no farm, however small, if in the apple belt, should be considered complete without its apple orchard. Apples are relished in almost any form. For many persons, nothing is more wholesome, or has a more useful medicinal effect, than an apple taken at the beginning of the morning meal. Such persons as cannot readily masticate and digest raw apples often receive benefit from a scraped apple, or one which has been baked. The flavor of the apple is delicate and easily impaired. To many persons, apple sauce has a finer flavor when eaten while still warm.

To Stew Apples.

Pare, quarter, core, and wash the apples. Place the prepared quarters in a saucepan with a small quantity of hot water, cover closely, and stew rapidly for five or ten minutes. If, on removing the cover, the apples fall apart readily, they are done. In this case, put into a dish half the quantity of sugar required to sweeten the apples, pour on this the hot apples, sprinkle over them the other half of the required quantity of sugar, cover closely, and serve hot or warm. If to be used cold, allow to remain covered until cold, in order to retain the flavor.

Cook apples as rapidly as possible in order to preserve the flavor of the fruit. The amount of water necessary depends upon the condition of the apple. Very juicy apples will require no more water than will adhere to the fruit in washing it before cooking. If the apples are very dry, they may require three-fourths of a cup to each pint. The flavor of the apple is usually delicate and easily destroyed, therefore only the quantity of water necessary to thorough cooking should be added. For the same reason, all unnecessary stirring either before or after cooking should be avoided.

To Bake Apples.

Core and pare tart apples, leaving them whole. Fill the cavity where the core was with sugar, and bake until soft. Use a granite ware pan, as either tin or iron is acted on by the acid.

Baked Apple Sauce.

Pare and core sweet apples. Put a little water in the pan to prevent burning, and cook until done.

To Make Cider Apple Sauce.

Boil sweet cider until it is reduced one-half, then add sweet apples which have been pared, quartered, and cored, and cook until the apples are dark and transparent. Keep the apples covered with cider while cooking. When the

apples are done, skim them out, and put more to cook in the same cider. If stone jars are thoroughly boiled and the cider apple sauce put into them while both jars and sauce are hot it will keep well in a cool place in open jars. It will, of course, keep the same as canned fruit if put into glass jars air tight.

Rhubarb and Apples.

One part canned rhubarb to two parts of sour apples, cooked and mixed with the rhubarb, makes a pleasant variety.

To Stew Cranberries.

Put two quarts of cranberries, after they are looked over and washed, into a granite ware or porcelain lined kettle, and pour over them one and one-half pints of boiling water, cover closely, and cook until the skins burst. Mash them through a strainer to remove skins, put again over the fire, add three cups of sugar, and when it is thoroughly mixed with the fruit and melted, remove from the fire. The sauce will jell when cold.

To Stew Cranberries—Class Rule.

One cup cranberries, one-half cup water (scant), one-half cup sugar (scant). Proceed as above.

Currant and Huckleberry Sauce.

Look over and wash the desired quantity of fruit, using one-third as many currants as huckleberries. Put to cook in the water that clings to them. Cook slowly until done, and sweeten to taste. Dried currants and canned blackberries make nice pies, when mixed in this proportion.

Currant and Elderberry Sauce.

Make same as currant and huckleberry sauce.

Raspberry and Currant Sauce.

Red raspberries and currants make a nice sauce, but when they can be had fresh are better raw than cooked.

Blackberry Sauce.

Look the blackberries over, and take the finest out to serve raw. Put the cullings to cook, using one cup of hot water to each quart of berries. Make half a cup of flour into a batter with half a cup of cold water. Put one-fourth of a teaspoonful of salt into one cup of boiling water, and pour this into the batter, stirring constantly to prevent lumping. When well mixed, stir it into the berries, and cook until the flour ceases to have a raw taste. Sweeten to taste, and serve cold with cream.

To Stew Pieplant.

Pieplant may be prepared for sauce in the same way as the blackberries, but when young and tender is best cooked in a little water and sweetened. Old pieplant must be peeled.

To Stew Gooseberries No. 1.

Proceed in the same way as for blackberries, after having removed the stems and blossom ends. When gooseberries are young, just cook with a little water and sweeten.

To Stew Gooseberries No. 2.

Pick off the stems and the blossom ends, wash the berries, and put to cook in just enough water to prevent burning. When about done, add a pinch of soda, set off the fire, and sweeten to taste.

To Cook Dried Fruit.

Thoroughly wash the fruit in warm water, then put to soak in sufficient cold water to cover it. Let stand until it has absorbed all the water it will take up, then put to cook in the water in which it was soaked. Cook slowly and continuously, after it reaches the boiling point, until it becomes tender. Sweeten just before removing from the fire. Many dried fruits have better flavor when a very sweet and a very acid variety are cooked together. Prunes and apricots are a good example of such a mix-

ture. Like fresh fruits, they should be cooked covered. Dried plums, if very sour, are improved by having an equal quantity of prunes or seedless raisins cooked with them.

To Cook Dried Apples.

Look the apples over, wash clean, and put to soak in plenty of cold water. Let soak several hours, or over night, and put to cook in the water in which they were soaked and cook slowly until done. Remove from the fire and sweeten.

All dried fruits are prepared and cooked in the same way.

Dried Apples and Raisins, or Dried Currants.

Use equal parts of the two fruits, and proceed as above.

Stewed Prunellos and Pears.

Use equal portions of the two fruits. Look over, wash, and put to soak in cold water in separate bowls. When swollen, put to cook in the water in which soaked, but cook the prunellos an hour before adding the pears. When soft, but not mushy, sweeten.

To Stew Prunes and Apricots.

Look over a pint of prunes and the same amount of apricots. Put to soak in separate bowls with cold water to cover, and let soak until they are plump, and have absorbed all the water they will. Then put the prunes to cook in a well-scalded cheesecloth bag. When they have cooked slowly an hour, add the apricots, and cook until they are done. Remove the prunes, sweeten the remaining fruit and juice, and pour over the prunes half of the liquid.

To Stew Prunes with Plums.

Proceed in same manner as with prunes and apricots.

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Dried Fruit Butter.

Use equal portions of apricots and prunes well cooked and mashed through a colander. Put over the fire, let become boiling hot, sweeten and serve. Equal parts of seedless raisins and apricots make a nice sauce also.

Buttered Apples.

Select a rather tart apple, pare and core, being careful not to break the apple, place in a rather shallow dripping pan, put a teaspoonful of sugar in the center of each apple. Make a basting liquid by heating together half a cup of water, four level teaspoonfuls of butter and one-fourth cup of sugar; baste the apples before putting them in the oven. Bake in a moderately hot oven; basting two or three times while baking.

To Steam Pieplant.

Use tender pieplant, cut in small pieces, wash and put into upper part of double boiler; set this in the water boiling in lower part, and put again over the fire, and let cook until done; then sweeten and serve.

CHAPTER XIII.

JELLIES, MARMALADES, PRESERVES AND PICKLES—JELLY MAKING.

Fruit juices must be skimmed while cooking to prevent cloudy jelly. To have clear, sparkling jelly, it is safer to strain the second time. To do this, have jelly bag, jelly dipper, and an earthen pitcher, as well as jelly glasses, ready in hot water, and when the jelly is ready to pour out, strain into the glasses. Some things jell so suddenly that much is lost by trying to strain, unless done quickly.

For all jellies measure the liquid after straining before putting to cook, and use an equal amount of sugar or less, as you like, for the jelling depends on the pectin of the fruit, and the juice will jell with no sugar. If the jelly is for meat, use less sugar than if for some other purpose. When the sugar and fruit juice have been measured, put the juice to cook in a new granite or porcelain lined kettle,—at least one free from stains if you wish a transparent jelly of its own color,—and the sugar in the oven to heat. The object in having the sugar hot is simply to hasten the work of jelly making, and the jelly is probably a little clearer when so made, as the boiling need not stop when the sugar is added. Jellies will also have a better color and flavor when the juice is cooked so that the sugar need be added only long enough, before taking from the fire, to be thoroughly dissolved and perfectly combined with the fruit juice.

Paraffine poured over the top of jelly to the thickness of one-fourth of an inch makes a good, cheap, and convenient covering. When ready to use the jelly, loosen the edges of the paraffine with a knife, and remove it, wash the paraffine, dry it, and lay it away for future use.

In using the following formulae, be sure that the directions are faithfully carried out. These are rules which have been tested and used in classes, and any variation from them may give disastrous results. If the fruit is used with much water clinging to it, it will of course require longer boiling than as here given for drained fruit.

The pulp of fruit used for jellies may be mixed with an equal portion of fresh fruit, and used for jams.

Currant Jelly.

Pick the currants just before using them. Wash the bunches, if they need washing, and drain. Pick the currants from the stems, put into the kettle, and cook ten minutes, or until soft, crushing with the wooden spoon. When ready, pour into a pointed jelly bag, which is best made of felt (if you wish clear jelly), and hang to drain, —do not squeeze. When the juice is ready, measure it and the sugar as directed, cook the juice ten minutes, then put the sugar in, let boil up well, strain, and put into tumblers.

The currants may be simply crushed, and the juice extracted for jelly, without previous cooking.

Apple Jelly.

Perfect, red, acid apples are the best, no matter what variety. Cut the apples into eighths, and use both parings and cores, as they improve the color and flavor of the jelly. Put three quarts of the cut-up apples in the preserving kettle, and pour over them one quart of boiling water, cook rapidly until the apples are soft, remove, and pour at once into a cheesecloth bag. When cool enough, squeeze out all the liquid possible, and pour into a white wool bag, and hang up to drain. When the liquid is ready, boil until a few drops on a plate will show signs of jelling, then put in the sugar, which was measured when the juice was put to cook and which measures three-fourths as much. The sugar must

be set in the oven, and kept from burning and melting until hot enough to hiss when put into the juice. Let boil up well, keep the jelly skimmed all the time, take the glasses from the hot water, and fill them.

Home-Made Vinegar.

Use the squeezed apples, boil up with water, strain, cool, and add a little sugar. Set in a warm place and cover with cheese cloth. Examine occasionally, and if not working, add a little more sweetening.

Crabapple Jelly.

It is very convenient to make this jelly when making crabapple butter. Select apples with perfect cores as well as skins. Put to cook in water just sufficient to show through as you look down on the apples. When the crabapples are soft, with a granite ware cup dip off juice enough for a few glasses of jelly, let drip through the jelly bag, measure, heat the sugar, boil the juice, and proceed as before in apple jelly, except do not let cook too much, as it jells very readily.

Grape Jelly.

Wild grapes, just after they turn, make a fine jelly, both in appearance and flavor. Cultivated grapes will jell just before ripe, when ripe, and even after having been stored for weeks, but stored grapes will give a jelly that is of a dark color, and not transparent.

Wash the grapes on the stem, drain, and stem them. Put in a stone jar without water, set in a pan of water, and cover closely. Let cook until the skins break, and the pulp is soft. Take from fire, pour into the jelly bag, and let drain. Measure the liquid and an equal amount of sugar. Put the sugar in the oven, and the liquid over the fire, boil twenty minutes. Then add the sugar hissing hot, let boil about two minutes, and pour into the hot tumblers.

Green Wild Grape Jelly.

Make same as any grape jelly, using wild grapes when just ready to turn.

Quince Jelly.

See that the quinces are perfectly clean, quarter and core them, but do not pare. Cut in small pieces, and put to cook in just enough cold water to cover them. Cook until soft. Drain through a white flannel bag, but do not squeeze. Measure the juice, and measure either three-fourths as much sugar or an equal amount, as you please. Put the juice in a porcelain lined or granite ware kettle over the fire, and put the sugar in a basin in the oven. Let the juice boil hard fifteen minutes, then put the sugar in hissing hot, let boil five minutes more, and try it to ascertain whether it will jell. It may need to boil a little more, but twenty minutes rapid boiling is usually enough.

Quinces are not a very satisfactory fruit for jelly when used alone. They jell with difficulty, making a syrupy rather than a perfect jelly.

Raspberry and Currant Jelly.

Use one-third raspberry and two-thirds currant, and make same as currant jelly.

Cranberry and Apple Jelly.

Wash and look over one quart of cranberries, put to cook in a granite or porcelain kettle with three-fourths of a pint of boiling water, cover closely and cook five minutes. Stir and mash with a wooden spoon, turn into a jelly bag with apples prepared as for jelly. Use three-fourths as much apple as cranberry juice, and add as much sugar as you have fruit juice. Cook five minutes and turn into glasses.

Class Rule.

Two cups of cranberries.
Three-fourths of a cup of water. Cook until soft.
Three cups of sliced apples.
Three-fourths of a cup of water. Cook until soft.

Drain through a jelly bag together. Use an equal amount of sugar and fruit juice. Cook five minutes and put into glasses.

Rhubarb and Apple Jelly.

Wash clean and cut into pieces two quarts of rhubarb and one quart of good cooking apples. Add the grated yellow rind of a lemon and one and one-half cups of water. Cook covered until both rhubarb and lemon are soft, then drain through cheesecloth. Measure the juice, and for each pint of it use three-fourths of a pint of sugar. Put the juice over the fire and boil rapidly for twenty minutes. Put the sugar in the oven, and add it hissing hot. When it boils, turn the jelly into glasses, if it jells on trial, otherwise boil a few minutes longer.

Strawberry and Currant Jelly.

Use equal parts of strawberry and currant, and make same as currant jelly, mixing the fruit before cooking.

Currant and Cherry Jelly.

Use two-thirds currant and one-third cherry, and proceed as for currant jelly.

Apple and Quince Jelly.

Use two parts apple and one part quince. Remove the seeds from the quinces, and cut the fruit in thin slices, otherwise proceed as for plain apple jelly. Use red apples to give color to the jelly.

Crabapple and Plum Jelly.

Use equal parts of plums and crabapples, and proceed as in making plain crabapple jelly. It makes a better jelly than either fruit alone.

High-Bush Cranberry and Apple Jelly.

Cranberry, one part (one cup), one-half cup water, cook until cranberries can be easily crushed. Apple, four parts (four cups), one cup water, cook until thoroughly done. Strain together, cook juice eight minutes after it

begins to boil. Add heated sugar, same amount as juice, and cook two minutes after beginning to boil.

Cranberry and Grape Jelly.

Cranberries, one part, grapes, two parts. Cook same as cranberry and apple. Strain together, and cook juice eight minutes. Add sugar same amount as juice. Cook one minute after beginning to boil.

Grape and Apple Jelly.

Use equal parts of grape and apple juice and proceed as for any other jelly.

Apple and Red Raspberry Jelly.

Use one-third as much red raspberry juice as apple juice and proceed as for any jelly.

Fruit Juices and Syrups.

A plentiful supply of fruit juices and syrups should be put up at canning time for use in desserts, creams, and ices when fresh fruit cannot be had. To make fruit juices of grapes, strawberries, raspberries, or currants, measure the prepared fruit, and put to cook in about one-fourth as much water as there is fruit. Cook and strain the fruit as for jelly. Put the juice over the fire, let boil rapidly for five minutes after it begins to boil, put into hot sterilized jars, filling them brimming full, and seal.

Fruit Syrup.

Make in exactly the same way as fruit juice, except boil twenty minutes, and add an equal amount of sugar five minutes before removing from the fire. If there is not water enough, the syrup may in some cases jell.

Grape Juice.

Five pounds concord grapes picked from the stems. Cook in a porcelain lined preserving kettle, having put over them three pints of cold water. When sufficiently cooked, strain the juice through a bag made of cheese-

cloth. Add one pound of granulated sugar. Bring the juice thus prepared to a boil, bottle, and seal.

MARMALADES.

Marmalades may be made of the entire fruit, or of equal parts of fresh cooked fruit and the pulp from which jelly has been made. In either case, rub the fruit pulp through a granite ware puree sieve with a wooden pestle. Put over the fire, and let cook until it is quite thick, then add three-fourths as much sugar as there was of the pulp, and cook until it is again thick and glassy in appearance, then pour into sterilized vessels, and when cold cover with paraffine. Jams and marmalades will usually be found much better in quality when made by gently simmering the fruit until almost sufficiently cooked before adding the sugar.

Peach Marmalade.

Cover the bottom of a wire basket with peaches, plunge into boiling water for a minute, put into cold water a little while, then drain and peel the skins off with a silver knife. Cut the peaches in halves. Remove the stones, and crack a few of them, as they will improve the flavor of the fruit if cooked with the peaches. Cook the peaches in a little water until soft, then mash them and evaporate the water until the mixture is thick. Now add the sugar, and cook until it thickens again and has a glassy surface. Pick out the pits before mashing.

Rhubarb Marmalade.

Prepare the rhubarb, cut into lengths, and put in a stone jar. Set the jar in a pan of water in the oven, cover it, and let cook until the rhubarb is tender. Then mash every particle of it fine, and to a gallon jar of the uncooked rhubarb add the grated yellow rind and the juice of two lemons. Mix the grated rind with the sugar. Set the rhubarb in a porcelain lined or granite ware kettle on the range, and cook until thick. Use

same amount of sugar as rhubarb. The rhubarb can as well be cooked in the ordinary way, but is a little more delicate this way.

Rhubarb and Apple Marmalade.

Make in the same way as rhubarb marmalade, except use one-third as much apple as there is rhubarb, and leave out the lemons.

Raspberry Marmalade.

Soft juicy fruits, as raspberries, blackberries, etc., can be made into marmalades, without the addition of fresh fruit, after draining in the jelly bag. Simply put through the sieve to remove the seeds.

Grape Marmalade.

Prepare the grapes for cooking, put into the preserving kettle, and cook until soft, then mash through the sieve, leaving skins and seeds. Put these into a bowl, pour a little boiling water over them, stir up, strain this into the pulp, and cook as before. Measure the pulp, and use an equal amount of sugar.

Tomato Butter.

Weigh five pounds of ripe tomatoes and half as much sugar, either white or brown. Scald and pare the tomatoes, take out the hard part, and cook the tomatoes until soft, then strain through a puree sieve. Put the pulp over the fire, and add to it one cup of good vinegar. Boil until quite thick, then add the sugar and boil again until it thickens. Slice two lemons and cook with it, after straining through the puree sieve.

Green tomatoes may be used in the same way.

Tomato Butter—Class Rule.

One cup of cooked tomato.
One cup of sugar.
Three thin slices of lemon.
Two teaspoonfuls of vinegar.

The vinegar may be left out and only three-fourths of a cup of sugar used.

Apple Marmalade.

Pare, core, and quarter tart apples. Place in a preserving kettle with water enough to just show through the fruit. Cook until thick, stirring occasionally; then add three-fourths as much hot sugar as there is of pulp. Cook until a thick paste is formed, stirring enough to keep from burning, and then add spices to taste. Cook only a few minutes, and turn into jars. Cover with paper or paraffine wax.

Crabapple Butter.

When making crabapple jelly, use the nicest of the fruit for this, but put the cullings to cook at the same time. Use the pulp which is left from the jelly-making, and the cullings cooked soft, for marmalade. Force these through a granite ware colander with a wooden pestle, and boil until quite thick,—almost thick enough to stand up when a spoonful is put on a cold plate. Add as much sugar as there is pulp, and cook until the wooden spoon will rest on the top of the cooking marmalade without sinking, then put into a clean stone jar, cover the top with hot paraffine, and tie a paper over this. Keep in a cool, dry place.

FRUIT PRESERVES.

By the word "preserves," we usually understand a fruit preserved in sugar, although, in its general sense, the word means preserving by other means as well. Fruits preserved in sugar are less wholesome than fresh or canned fruits, on account of their extreme sweetness. So much sugar is used in tea and coffee and other ways that the body usually has all it needs without the use of preserves or cake to any great extent. In preserves, the fruit acids seem to be so overcome by the sugar that they exert a less beneficial effect than when the fruit

is taken raw, or cooked, and simply sugar enough to sweeten it is used.

Melted paraffine is a good covering for preserves, but there should be a paper tied over the top of the jar to exclude the dust. The paraffine will prevent evaporation to a great extent, and keep them moist on top, even in a warm atmosphere. It is better to heat the paraffine, and pour it over, than to put a piece on top of the preserves to melt, as the heating kills any germs which may be on the wax. In making preserves, the fruit and sugar must be cooked together long enough to thoroughly dissolve the sugar, and prevent it recrystalizing. They should not be boiled together longer than necessary, because the sugar loses so much of its sweetening power. Preserves and jellies should be kept in a dry, cool place.

All solid fruits, such as peaches, pears, etc., should be cooked almost done before the sugar is added. Weigh the fruit before cooking, and use almost an equal amount of sugar. After adding the sugar, cook until the syrup formed from the fruit juice and sugar is as thick as honey. Put the fruit carefully into the jar, and pour the liquid over it.

When soft fruits, such as berries, are preserved, it is impossible to keep them whole unless great care is exercised. It is better to boil the syrup until thick enough, and cook the berries in it just long enough to sterilize them, and evaporate the juice which exudes as they enter the boiling liquid.

Tomatoes, when preserved, should be cooked in the syrup. Ground cherries are also better treated in this way. Quinces are sometimes preserved by cooking until tender, and putting in a sterilized stone jar, a layer of quince and a layer of sugar, using equal amounts of each. The object in doing this is to have a lighter colored product. The quinces must be watched, and if they begin to ferment they must be boiled, as they are not certain to keep, preserved in this way. One-third as much sweet

apple as quince may be used in quince preserves without deteriorating the product.

To Preserve Cherries.

Stone the cherries. For each quart of cherries measure one and one-half pints of sugar. Put the sugar in a saucepan, and pour over it half as much boiling water as there is sugar. Cook until the syrup is thick, then put in juice and cherries, and skim as it cooks until the cherries are transparent. Skim out the fruit into glasses, and when the syrup is thick as honey, pour it over them. Cherries have a better flavor if some of the pits are cooked with them. Measure the cherries before stoning, if preferred sweeter.

To Preserve Strawberries.

Strawberries, raspberries, and all soft fruits are preserved in the same way as cherries, except use equal parts of sugar and fruit where it is more acid than cherries.

To Preserve Pears and Peaches.

In preserving firm fruits, as some peaches and pears, put them into boiling water and cook slowly and covered until easily pierced with a toothpick, then remove, and drain; add sugar to the juice or liquid in which the fruit was cooked, and, when thick, put the fruit into it, let boil up, and put carefully into the glasses. Peaches have a better flavor when a portion of the pits are cracked and cooked with them, and pears are improved by the addition of a little ginger root or cinnamon bark boiled with them. Use a piece an inch long to each glass. The liquid must be thick before taking from the fire.

To Preserve Sweet Apples.

Use a sliced lemon to every dozen apples, and cook with the apples to give flavor. Pare, core, and quarter the apples, and put them and the sliced lemon in sufficient boiling water to cover them. Let cook, covered, until the

apples can be easily pierced with a toothpick or broom straw, then pour off most of the liquid, and set the kettle where the contents will boil slowly. Measure the liquid poured off, and add nearly as much sugar. Cook the syrup thus formed until nearly as thick as honey, then pour over the fruit in kettle, cook ten minutes longer, or until the syrup is again thick as honey, and pour out into glasses.

Quince and Apple Preserves.

Use two parts apple and one part quince. Cook as sweet-apple preserves, except cook the quince until tender before adding the apples.

Tomato Preserves.

Use a small tomato,—the peach tomato is good. Take equal parts of tomato and sugar. Use one and one-half tablespoonfuls of ginger to each gallon of preserves. Make a syrup with the sugar, ginger, and a little water. When it boils up well, put in the tomatoes and cook until they are done, then skim the tomatoes into jars, boil the syrup until thick as honey, and pour over the tomatoes. After three days, drain the syrup off and boil again.

Peach Preserves.

Prepare the peaches in the same way as for marmalade (page 160), but be careful not to break them. Cook in a syrup made of equal parts of sugar and water. Put in only a few peaches at a time and keep them whole. Put peaches into glasses, boil syrup down until as thick as honey, and pour over them.

Preserved Pineapple.

Pare the pineapples, and with a sharp-pointed knife dig out the eyes, cut the pineapple in slices an eighth of an inch thick, cover with hot water, and cook slowly until tender, then remove the pineapple, and add as much sugar as juice (the juice should evaporate one-half), let boil until the sugar is dissolved, then add the

pineapple again, and let cook until the pineapple is transparent, and the syrup thick as honey. Put into glasses and cover with paraffine.

Watermelon-Rind Preserves.

Select rind from a thick-rind melon, remove the red inner portion, and pare off the green outer part, cut into small pieces, and cook in boiling water until transparent, then skim out and put into a syrup, and add, for each pint of the syrup and melon together, one sliced lemon. Cook until the lemon is tender and the syrup is thick as honey. Put into a jar and tie a paper over, or cover with paraffine.

Preserved Citron.

Proceed in same way as for watermelon-rind preserves, except parboil and drain them.

Preserved Plums.

Prick the skins, to prevent breaking, or scald and remove them if desired. Make a syrup of equal parts of water and sugar, and when boiling put in a few plums and let cook until heated through, skim out, and put in a jar. When all are cooked, set aside until next day, then tie a piece of cheesecloth over the jar, drain off the juice, and boil this down a little, and pour over the fruit. Repeat this three times or more, and the last time empty the jar, and put the plums in the syrup, and let boil up, then put into the jar again very carefully, and pour the boiling liquid over them.

Candied Orange and Lemon Peel.

Cut the peels into eighths, if convenient. Cook in boiling water until transparent. Skim from the water into syrup made with equal parts of water and sugar, and cook until the syrup is thick as honey, remove the peel, and dry on a plate. Use both peel and syrup for flavoring desserts.

FRUIT JAMS.

Fruit jams are made in the same way as marmalades, except that the fruit is simply mashed, and the seeds and the skins are left in it.

Rhubarb Jam No. 1.

Seven pounds rhubarb, three and one-half pounds sugar, two unpeeled lemons, sliced very thin and cut fine. The rhubarb is peeled, cut in inch pieces, stewed, with one-half cup water, until it is a pulp. Add sugar and lemons, and boil until it is of the consistency of jam.

Rhubarb Jam No. 2.

Wash rhubarb clean, peel, and cut into lengths. Put to cook in just enough water to prevent burning. Cook until perfectly soft, mash to a pulp, and continue the cooking until it is quite thick. Stir to prevent scorching. Measure by the eye as much sugar as there is rhubarb, and add a teaspoonful of ground ginger to each pint. Add this and the sugar, well mixed, to the rhubarb, and cook until again thick, then put into jars, and, when cool, cover with hot paraffine.

Pickling.

For pickles a vinegar of some kind is necessary. Cider vinegar is perfectly wholesome and good flavored when made from good apples, and may be wisely used, though a scum will sometimes rise on the pickles made with it. There is in the market a grape vinegar also, a red and white wine vinegar, and a vinegar made in the manufacture of beer, known as "malt vinegar." Vinegar may be made by simply sweetening boiled water and allowing it to set in a warm place, but this is inferior to fruit

vinegar. If one wishes a vinegar which is colorless and imparts no flavor of its own to the articles preserved in it, white wine vinegar will be found preferable. Articles pickled in this vinegar are remarkably free from scum, also. Some housekeepers regard a clean horseradish leaf laid in the jar on top of the pickles a safeguard against scum and other impurities.

Watermelon-Rind Pickles.

Pare the rind and cut into slices as wide as the rind is thick. Put the rind to cook in boiling water in a granite ware saucepan, using one-half a level teaspoonful of salt to each quart of water, and cook until it becomes translucent. Drain off the water, put the rind into sweet pickle prepared in the manner given below, and let boil half an hour. Tie a cheesecloth tightly over the top of the jar, and set away.

To Prepare Vinegar for Watermelon-Rind Pickles.

For each quart of good vinegar use three pints of best brown sugar, and a cup of mixed spices, using more cinnamon in proportion than allspice and cloves, leaving out the bay leaf, unless liked. Boil these together and pour over the pickles. Leave the spice bag in the jar, and keep down with a small plate, or something of the kind. Do not have the vinegar too strong, but just good, acid vinegar.

Cucumber Pickles.

Fill a gallon jar with small, freshly gathered cucumbers, sprinkle lightly with salt, fill the jar with boiling water, and let stand until cold. Drain the water from the cucumbers, put them in a preserving kettle with equal portions of cider vinegar and water, and heat to boiling point. Then pour off the liquid. Put the cucumbers in the jar, add three small, sweet peppers, and half a dozen whole cloves. Cover with cold vinegar, and put away. In a day or two the vinegar should be again scalded and poured over the pickles.

Sweet Cucumber Pickles.

To one cup of vinegar add one-half cup sugar. Put in this two teaspoonfuls of mixed spices, tied in a cheesecloth bag. Bring to the boiling point, and turn over the pickles. Repeat the heating for three different days, cover with a horseradish leaf, and tie a cloth over the jar, leaving the spice bag in it.

Ripe Cucumber Pickles.

Make same as watermelon-rind pickles.

Green Tomato Pickles.

Use the same proportion of tomatoes, sugar, spices, and celery as in the chow chow, and proceed in the same way, except slice the tomatoes instead of chopping them.

Sweet Tomato Pickles.

Pare one pint of firm, green tomatoes, put on the stove in equal parts of water and vinegar, and let simmer twenty-five minutes. Make a syrup of one cup of vinegar and one-half cup of sugar. Put into it three-fourths of an inch of ginger root, and one inch of cinnamon. Drain the tomatoes from the plain vinegar and water, put into the syrup, and let simmer forty-five minutes, then put into jars and set away.

Chili Sauce.

Three cups of cooked tomato or six large tomatoes, three ripe or three green peppers, two onions (medium size), two tablespoonfuls of salt, one cup of sugar, one tablespoonful of cinnamon, three cups of vinegar. Chop the onions, tomatoes and peppers separately until very fine, put the ingredients all together, except the sugar and cinnamon. Cook until it thickens some, then add the sugar and cinnamon and cook again, bottle and set away for use.

Spiced Tomatoes.

The small, yellow tomato is the best. Put a quart of vinegar over the fire. Tie in a piece of cheesecloth three

pepper-corns, half an ounce of whole cloves, and a two-inch piece of ginger root. Weigh the tomatoes, and add to the vinegar with the bag of spices half as many pounds of sugar as there are of tomatoes. Prick the tomatoes, and when the vinegar boils again, put them in and cook until they look clear. Take the tomatoes out, boil the liquid half an hour longer, pour over the tomatoes in the jar, put the spice bag on top, tie cheesecloth over, and set away with a thick covering of paper on top.

Spiced Plums.

Make same as spiced grapes, except cook the plums whole and leave the pits in.

Spiced Grapes.

Five pounds of grapes, one pint vinegar, one tablespoonful of allspice, four pounds of sugar, one tablespoonful of cloves, one tablespoonful of cinnamon, one-half tablespoonful of mace. Pulp grapes and heat slowly about five minutes. Turn into a coarse sieve and press pulps through. Place skins with this pulp and weigh the whole. Make a syrup of the sugar, vinegar, and spice. Boil the fruit in this syrup one-half hour, or until very thick.

Pickled Cabbage.

Select crisp, white cabbage, and chop fine. To each quart of chopped cabbage add a tablespoonful each of salt, white mustard seed, and sugar, with pepper to taste. Put the mixture in a jar, and cover with cold cider vinegar. Scatter half a dozen cloves over the top of the cabbage, cover the jar, and in a few days the pickle will be ready for use. May let come to a boil before putting into jar.

Pickled Peaches or Other Fruits.

To one cup of vinegar add three-fourths of a cup of sugar, or, if wanted very sweet, one cup. Three inches of stick cinnamon, one teaspoonful of whole cloves, one tea-

spoonful of mustard seed, one-half teaspoonful of allspice whole, one-half teaspoonful of pepper whole, one inch of ginger root. Put the spices in a bag, and heat with the vinegar, and pour over the fruit as directed for cucumbers. Grapes on the stem are very nice treated in the same manner.

Pickled Berries.

Seven pounds of berries, three pounds of sugar, one and one-half pints of vinegar, two two-inch sticks of cinnamon, one and one-half tablespoonfuls of allspice, three-fourths of a tablespoonful of cloves. Boil up sugar, vinegar, and spices together. Add the berries, and let come to a boil.

Chow Chow.

One-half peck of green tomatoes, one-half cup of salt, three small onions, one-half of a large head of celery, two quarts of chopped cauliflower, one-fourth of a medium head of cabbage, one cup sugar, one-half teaspoonful of white pepper, two teaspoonfuls of ground cinnamon, two teaspoonfuls of ground allspice, two teaspoonfuls of ground mustard, two pints of good vinegar. Chop the tomatoes fine, and let stand over night. Drain the liquid off, chop the other ingredients. Mix the sugar, salt, and spices. Use a porcelain lined or granite ware kettle for cooking. Put in a layer of tomatoes, then a layer of the other ingredients mixed, alternating thus until all are used. Put the mixture of salt, etc., into the vinegar, heat boiling hot, pour over the contents of the kettle, and cook until the tomatoes are tender, skim into a jar, and cook more in the same liquid.

CHAPTER XIV.

CONDIMENTS, SPICES AND FLAVORS.

One of the objects of cooking is to develop flavors, as in broiling a steak, roasting coffee, etc. Here the skill of the cook is tested, and a knowledge of the intensity and continuance of heat is required.

In cereals, dry beans, etc., the flavor depends largely on the cooking, though a few additions are made, as salt, pepper, etc. In order to use such common things as salt and pepper wisely, the taste must be educated. There is but one object in using such things, and that is to give pleasure to the eater. The Germans have well named them "enjoyment givers." We are so constituted that we cannot long enjoy anything fully if it is used in excess, hence the necessity for both those who cook and those who eat to train themselves in enjoying the flavor of the article itself, rather than the salt and pepper or other condiments or spices showered over it.

Flavors should always be delicate. A flavoring material which is added to a food while cooking is less harmful than that added at the table, because the wise cook uses only enough to prevent the food being insipid,—a sufficient amount to make the mouth water,—while over-seasoned food weakens digestion by over-stimulating the secretive glands, and irritating the delicate membranes of the digestive tract.

There are many substances besides salt and pepper which, added to food, give variety of flavor, or a better flavor to an insipid food. These are usually classed under two heads,—condiments and spices. Those which are used with meats are called "condiments." Those which are combined with sugar and used with fruits are called

"spices." Many of these flavoring materials are of vegetable origin. Among them are cloves, allspice, cinnamon, cassia, nutmeg, mace, pepper, caraway seed, celery seed, bay leaves, summer savory, parsley, thyme, sage, sweet marjoram, mint, tarragon, capers and curry powder. These are simply aromatic, but some are both aromatic and pungent, as mustard, horseradish, and ginger. Salt is chief among condiments. A little of this heightens the flavor of almost any food.

Cloves are the flower bud of an evergreen tree indigenous to the Molucca or Spice islands. The clove tree is cultivated in the West Indies and Guiana, but the cloves off trees from there are less aromatic than those of the Spice islands.

Allspice is a native of the West Indies. It is the green berries of the tree, dried in a rather low heat.

Cinnamon is a bark stripped from the young shoots of a tree allied to the laurel. The inner bark only is used. It is very thin and papery in appearance, and dries in small tight rolls, and has a decidedly pleasant and spicy taste. Cinnamon, like most spices, comes from the East India islands. Cassia bark resembles cinnamon a little, but the bark is very much thicker, the rolls shorter and the taste much less pleasant, and not nearly so strong. Cassia comes from China. In the ground spices, one must depend upon the taste to distinguish between cassia and cinnamon.

The nutmeg tree, a native of the East Indies, is grown principally in the island of Banda. The fruit is of a yellow color, about the size of a pear. It is a drupe or stone fruit, and the kernel is the portion used as a spice. Mace is similar to nutmeg, being derived from the same fruit. It is the second coat which covers the nutmeg. It is a thin membranous substance divided in such a way as to give a lace like effect. It is used in the same way as nutmeg.

Pepper is a native of the East Indies, the island of Penang producing it in largest quantity. The cultivation of pepper has been introduced into the West Indies. Pepper is the fruit of a vine, and is gathered before it is ripe, which gives a wrinkled appearance when dry. White and black pepper are made from the same berry, the white having the dark outer covering removed before it is ground. White pepper is preferable for all uses in which black or white pepper are chosen. Red pepper or cayenne pepper is very pungent. It is the product of a species of capsicum. Paprica is also a product of capsicum, the cayenne pepper being the strongest, and the paprica the mildest, variety. Our garden pepper may well be substituted for both. The common red pepper is very strong, and what is known as "sweet pepper" is very much milder.

The caraway plant grows wild in Europe and Asia. It is cultivated for its aromatic seeds, which are used for spicing cookies, cheese, and rye bread.

Celery is a plant very susceptible to cultivation and the tender white stalks found in our gardens bear little resemblance to the wild celery of Europe. There are few plants which are so near wholly edible as celery. The dainty green tops are used for garnishes especially with salads. The coarser green parts are used with the roots for flavoring soups. The tougher white parts make a delicious cream soup, while the tender white portions are delicious just as they are. The seeds of celery are used to flavor soups, croquettes, etc.

Bay leaves are the dried leaves of a shrub growing in the countries bordering the Mediterranean sea. Bay leaves are used for flavoring soups, pickles and sometimes stews.

Summer savory is a hardy annual which grows wild in Southern Europe, and is cultivated in our gardens. It is used mostly for seasoning sausages and gravies.

Parsley has been much improved by cultivation since it left its native Sardinia. It is much used for seasoning soups and salads, and is a very great favorite as a garnish. The curly variety is preferable.

Thyme is a pungent aromatic plant, and is used for flavoring soups.

Sage is a plant with light green leaves, common in our gardens, and is often freely used in flavoring sausages and dressing for fowls.

Sweet marjoram grows wild in Spain and is cultivated in the United States and Europe. It is a pungent and aromatic plant of the mint family, used mostly in soups.

Spearmint is a member of the mint family, used much in cookery, and is relished in a mint sauce for a lamb roast. It gives piquancy to an ice. Mint may be used also in making a sauce for fish or fowl, but is not so generally used in this way.

Tarragon is a small aromatic plant, native of Liberia. It is used for flavoring vinegars, which, in turn, give variety in salad dressings.

Capers are the unopened flowers of a trailing plant, which, like tarragon, is a native of Africa. It also grows wild in Southern Europe. It is cultivated in France. The small green berries only are used. These are preserved in salt and vinegar, and are used in salads and meat sauces. The smaller capers are best.

Curry powder is a manufactured condiment. Many of the above described ingredients enter into its composition, and all are finely ground and thoroughly mixed.

Mustard is a common plant, and some varieties of it grow plentifully in neglected places in our own country. There are two varieties of mustard,—the black and the white. The black mustard has small black seeds. The white variety has larger yellow seeds. The seeds of both varieties are used whole in making pickles, but the white are preferable in most cases. Ground mustard is desirable

for seasoning salads. This is often adulterated, but one can judge whether genuine by the dull yellow appearance, and the very pungent odor of pure mustard. When good mustard is wet with cold water, it will affect the eyes, like peeling a raw onion.

Horseradish is a well-known plant, possessing a very pungent odor. It can be grated in its season, bottled in vinegar, and kept tightly corked for use later in the year.

Ginger is used mostly in pickles, beverages and desserts. The young and succulent roots are preserved in sugar or dried. Powdered ginger should be free from woody fiber. Ginger comes from both the East and West Indies.

Many of these aromatic plants can be easily grown in our kitchen gardens, and it is far wiser to grow these than to depend on the market for every bouquet of herbs and all salad seasoning we may wish.

References: Food Products of the World—Green—pp. 83-103; U. S. Dept. Agr., Farmers' Bulletin No. 122, pp. 16-18.

CHAPTER XV.

MEATS.

Animal foods contain practically the same classes of nutrients as are found in vegetable foods. The protein in meat differs from that in vegetables in three ways. It is more abundant, more easily digestible, and very different in appearance. This compound in meat is considered under the three heads of albuminoids, gelatinoids, and extractives. The albuminoids are the chief flesh formers of meat. They are capable of forming muscle, tendon and fat, and of yielding energy in the form of heat and muscular strength. So far as scientists have yet learned, gelatinoids cannot be said to change to the composition of albuminoids, but they do protect the albuminoids from being consumed. The extractives give flavor to the meat and presumably tone to the system. That these cannot build tissue nor furnish heat to the body is believed to be an established fact. Scientists and medical men agree that they do serve a purpose, but just what that is they cannot explain. The extractives seem to exert some action on the nervous system which aids the body in making use of the food consumed. Scientists are of the opinion that "flavoring materials and an agreeable appearance do not directly increase thoroughness of digestion, but serve to stimulate the digestive organs to greater activity as regards the actual amount digested. This stimulation is probably not of so great moment as is commonly supposed. Meat that has been extracted with water so as to be entirely tasteless has been found in actual experiment to be as quickly and completely digested as an equal weight of meat

roasted in the usual way."* There seems to be inherent in man a desire for flavor. Dr. Livingston tells us that the savages in the wilds of Africa throw the meat over the coals long enough to sear it a little, then swallow it, hot, but it has a different flavor, though nearly raw.

The value of meat for food depends in part upon the proportion of protein to fat. While the protein can take the place of fats and carbohydrates, nothing else can do the work of the proteids. It is not wise to allow the proteids to take the place of the other elements of food, because the changing necessary to fit them for use entails too much work on the organs, and it is substituting the more expensive for the much cheaper food substances. Neither is it wise to attempt to wholly substitute vegetable protein for animal protein. The nutrients in vegetables are enclosed in woody fibre which resists the action of the digestive juices, and probably oft-times hastens the food along the digestive tract too rapidly, owing to its irritating action on the lining membrane of the intestines, to insure complete digestibility. The fat in meat performs the same office as starch, sugar, and digested cellulose in vegetable foods. It forms fatty tissue, or serves as fuel, and yields energy in the form of heat and muscular strength. There is no perceptible difference in the digestibility of animal and vegetable fats. Animal foods contain much more fat than vegetable foods.

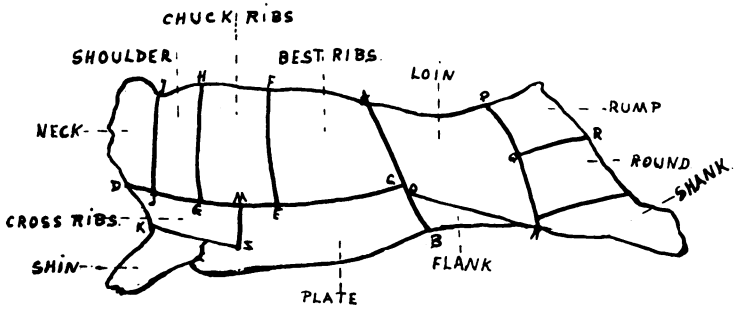
The following charts are from "Meats for Farm Use."—Andrew Boss, Associate Professor of Agriculture, University of Minnesota.

Beef—Uses of Cuts.

The seven best ribs are used for oven roasts. The chuck ribs are used for shoulder steaks, pot roasts and boiling pieces, and when from first-class beef animals they make good oven roasts. When used for oven roasts or steaks, they should be cut parallel to the ribs. For pot roasts and boiling pieces they should be cut across the

*U. S. Department of Agriculture, Farmers' Bulletin No. 34 —p. 17.

ribs. The shoulder is best for boiling pieces, or pot roasts, the neck for mincemeat or stews. The plate is used for stewing and is frequently corned. The cross ribs make good pot roasts or boiling pieces. The loin is usually cut into steaks, though it makes prime roasts and is often so used. When cut into steaks, it is customary to begin at the back end and cut slices parallel to the line N. P. The first seven or eight slices taken off are known as sirloin steaks. From the hook points or hip bone forward to the end of the tenderloin muscle lying on the underside of floating ribs, the porterhouse steaks are cut. A few slices of tip end sirloin may be cut off the front end of the loin just before reaching the rib. The steaks from

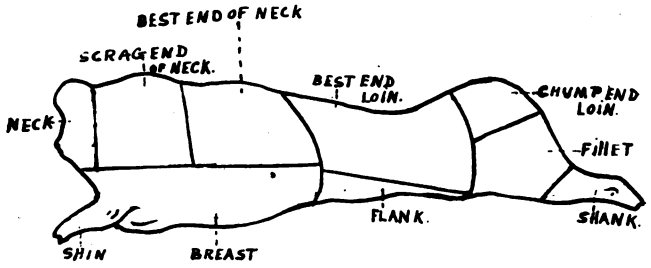


Side of Beef—Names of Cuts.

both butt end and tip end of sirloin are inferior to those where the tenderloin lies, and the ones cut from the central part of the loin where the tenderloin is largest are superior to all others from the point of tenderness, but in flavor and food value they are no better. The rib is used for a small roast. The rump is used for roasting, corning or pot roasts and is usually cut up into pieces running parallel to the line P. Q. The upper part of the round is used for steaks, the lower part for boiling. The lower part of the round is frequently run through a sausage cutter and made into Hamburg steak. The flank is used for stewing, the shank and shin for soup. The shank is the better piece because it has more meat usually.

Comparative Value of the Cuts of Beef.

The loin cut of beef is looked upon as being the choicest cut, with the best ribs ranking second. Then follow in order the round, chuck ribs, rump, cross ribs, shoulder, plate, flank and neck. From the standpoint of actual food value, this comparison does not hold good, for we find on comparison of the food nutrients in the different cuts that some of the so-called inferior joints are really as valuable as the higher-priced and more popular portions. The chuck rib, for instance, contains almost the same amount of nutrients as the loin, and the nutrients are in just as digestible form. The chuck ribs can be bought at eight cents per pound when the loin is twelve cents per pound. The best ribs at ten cents furnish considerably less nutritive material than the chuck. The round at eight cents supplies even more nutriment than any of the fore-mentioned cuts. The rump is also a very economical cut to buy when its food value is considered. The plate, neck, shank, etc., contain a fair quantity of nutrients, but are not so palatable, nor can they be cut into steaks and roasts, and are not so popular for this reason.



Side of Veal—Names of Cuts.

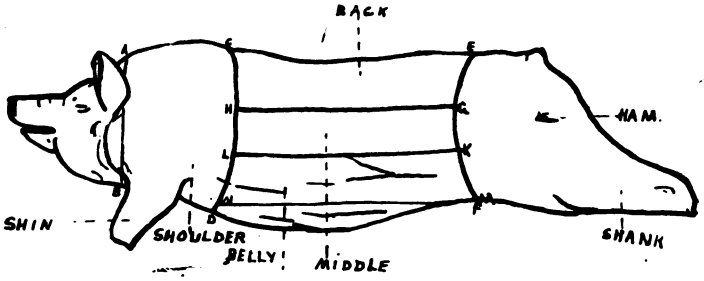
Veal—Uses of Cuts.

The shank of veal is used for soups. The best end of loin is used for roasts and chops. The scrag end of neck is used for boiling. The breast of veal is used for stew. The flank is also used for stew. The chump end

of loin is used for roasts. The fillet is used for roasts and steaks. The neck is used for broth.

Pork—Uses of Cuts.

The ham is generally pickled and smoked, though it is sometimes cut into pork steak when fresh. The shoulder may be either used as steak, cured as ham, or it may be ground into sausage meat. The choicest meat is obtained from the loin. The loin is used as a roast or is cut into pork chops. Pork chops are cut parallel to the ribs and should be three-eighths to one-half an inch thick.



Side of Pork—Names of Cuts.

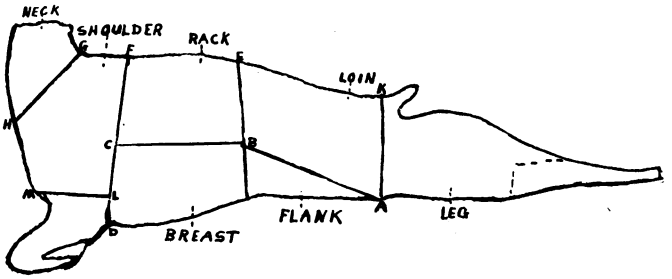
The spare rib is considered a very choice portion when broiled in the oven or when stuffed and roasted. The back strip of side meat is sometimes made into salt pork, but, as it is nearly clear fat, it is best to try it up into lard. The middle strip makes a second-class quality of bacon or salt pork, but the third or lower strip is considered best for this purpose, as it contains a larger proportion of lean meat.

Mutton—Uses of Cuts.

The loin, which is usually considered the choicest cut of mutton, may be used either for an oven roast or for mutton chops. When used as an oven roast, it is roasted without any further cutting, except to crack the joints in

the backbone with a cleaver, to facilitate carving at the table. Chops are cut from this joint in slices parallel to the line A. K. They should be cut from one-half to three-fourths of an inch thick. The rack is considered second in quality and is usually cut into chops for broiling or pan broiling or braising.

The chops should be cut one inch thick, leaving one rib in each chop. They should be cut parallel with the ribs and cut off at the block with a cleaver. The leg, without further subdividing than to remove the tail and



Side of Mutton—Names of Cuts.

scraggy parts is used for oven roasts or for boiling. The shoulder should have the joints in the ribs cracked, and the ribs themselves broken on the inside at the middle. It may then be used for an oven roast if the animal is a young one, otherwise it should be used for boiling. The neck makes choice mutton broth, and the breast and flank may be used in the same way, or they may all be used for stews.

Cuts of Lamb and Their Uses.

The cuts of lamb are very similar to those of mutton, though in some cases they have different names. The cuts of lamb are: Neck, shoulder, chuck, breast, saddle and leg. The saddle includes the loin and a portion of

that part known in mutton as rack, and extends from the aitch bone nearly to the chuck (sixth or seventh rib). The chuck begins about the fourth rib and extends to the saddle.

The neck and all trimmings are used for broth. The breast of lamb is usually braised or similarly prepared. The saddle is used for an oven roast or cut into chops. The chops from the rib portion are called rib chops or French chops, and those from the loin are called loin chops. Lamb chops are used for broiling.

The rib piece is sometimes made into a roast known as crown of lamb.

The leg of lamb is used for an oven roast. The shoulder is used in the same way as the leg, though it makes a much poorer roast.

Good Recipe for Corning Beef.

To every one hundred pounds of beef, weigh out eight pounds of ground rock salt if it can be had; if not, common salt may be used. Cover the bottom of the barrel with a layer of salt a quarter of an inch deep and then pack in a layer of meat as compactly as possible, leaving it level on top. Cover this with a layer of salt and a layer of meat until all is used, proportioning the layers so that the eight pounds of salt will be used up at the same time that the hundred pounds of meat is all in. Allow the meat to stand in the salt over night. The next day dissolve two ounces of saltpetre, four ounces of saleratus and four pounds of sugar in a little warm water and turn it over the meat. Add cold water until the meat is covered. Put a loose cover or board over the meat and weight it down to keep the meat entirely under the brine. Keep in a cool, dry cellar. If, at any time, the brine becomes slimy or ropy it should be turned off, the meat should be washed and a new brine made.

BOILING AND STEWING MEATS.

The term "boiling," as used in cookery, means cooking

in a liquid which is kept at the boiling point. If the nutriment is to be kept in, as in boiled meat, the piece of meat should be left intact, so that as little surface as possible be exposed, and plunged into boiling water, and when the contents of the kettle have again reached the boiling point, moved where it will remain near the boiling point, but will not boil rapidly.

When meat is plunged into boiling water the albumen near the surface is coagulated, thus forming a coating which shuts in the juices somewhat, and as the heat penetrates to the interior of the meat, the juices bathing the tissues become hot, and when the meat is served, a slice only a short distance from the outer surface is found tender and juicy, the tiny bundles of fibres having been cooked in the natural medium.

If the object is to have the flavor as nearly as possible all in the liquid, as in soups and in meat teas, cut the meat in small pieces, soak in plenty of cold water for a time, and heat slowly, never boiling, but merely simmering, in order that the juices may be drawn out as thoroughly as possible.

In stewing meats, the object is to have the nutriment partly in the liquid and partly in the meat. In this case, cut the meat into pieces suitable for serving, put into the kettle, and pour on a small quantity of hot water, cover closely, and allow to cook slowly but unceasingly until tender, which will give nice, juicy meat, and gravy of good quality.

Caper Sauce.

Use mutton soup stock and thicken with butter and flour,—one tablespoonful of flour and one tablespoonful of butter to one cup of liquid. Put the butter and flour into a sauce pan and heat over the fire until the butter melts, but not until it browns. Turn into this the cold broth, stirring constantly until it boils. Put in capers

last, a scant one-quarter of a cup to a cup of liquid. Serve with boiled mutton.

Parsley Sauce.

Make same as above, except put in one generous tablespoonful of finely minced parsley instead of capers. Serve with boiled mutton.

To Boil a Leg of Mutton.

Remove the outer skin, as this often gives an unpleasant flavor. Be careful not to cut the meat while peeling off the outer covering. See that the meat is clean, then sear the cut surfaces on a hot spider. Have boiling in the kettle a quart or three pints of water. Plunge the joint into it, and cover closely, allowing the steam to help in the cooking. Just the amount of water needed cannot be given, because the size of the kettle and the age of the meat will influence this matter. Have enough so that the meat will not burn, and there will be just enough left to make the sauce. Set the kettle over a hot fire until the water boils, then move to where it will keep near the boiling point, but will not boil hard. Boiled meats should be salted half an hour before removing from fire.

Egg Sauce.

Make the drawn butter sauce as directed on page 200, using mutton broth for the liquid. Season with salt and pepper, and add one large or two very small hard-boiled eggs, chopped fine. Serve with boiled mutton.

To Cook Breast of Lamb.

Remove the outer skin, which is apt to make the meat taste woolly if left on, see that the meat is clean and put whole into the kettle and stew until the bones will slip, then remove them, put the meat in a dripping pan, set it in the oven, cover with buttered crumbs, and cook until brown and tender. Make a gravy of the broth left in the kettle, and serve with the lamb.

Breast of Lamb with Tomato Sauce.

Proceed same as before until ready to make the gravy, then add as much tomato as broth in making the gravy.

To Cook Sweetbreads.

Soak in salt and water to make clear and white, then cook in boiling water until tender, and let cool in the water in which they were cooked. Serve with a mushroom sauce or a white sauce.

To Cook Corned Beef.

Soak in cold water until sufficiently freshened. Then put into a sufficient quantity of boiling water to prevent burning. Cook until tender. Cabbage, cauliflower, turnips, spinach, beans or carrots may be appropriately served with corned beef. When one desires, part of the water in which the beef is cooking may be poured into another kettle, and the vegetables cooked in it. The meat flavor which the vegetable takes renders it more palatable, and not less wholesome.

To Boil Ham.

If the ham is moldy, scrape with a dull knife until clean, and saw off the bone, if necessary, then soak, skin side up, in cold water, wash with brush, wipe dry, and put to cook, skin side down, in boiling water. Cook until tender, usually about twenty minutes to the inch. If to be served cold, let remain in water in which it is cooked until cold, then skin, slice thin, and serve. Or, after the skin is removed, cover with bread crumbs, moisten with sugar and vinegar, and brown. If to be served hot, take from vessel in which cooked as soon as done, remove the skin, slice, and serve. Ham, if from a young animal, may be wrapped in dough and baked.

To Stew a Fowl.

Cut the fowl into pieces suitable for serving. Put in the back, the rib piece, the drumsticks, and all pieces which require the longest cooking, in order of their time to

become tender, put the breast on top, and pour over just enough hot water to prevent burning while the fowl cooks. Cover closely, and when it boils move back where it will cook slowly. Salt when nearly done. When done, remove the meat, add milk or chicken broth to make gravy.

A small onion and a blade of mace, big as the thumb nail, stewed with an old hen, brings out the flavor. Celery is next to onion in its ability to mix with things universally, and parsley comes next on the list. Celery is preferable to any other flavoring with boiled chicken or turkey, the other is used for variety. Parsley may always be used with stewed chicken with drawn butter sauce. Celery, oyster, lemon, or caper sauce is appropriate with boiled fowl.

To Fricassee a Fowl.

A fricassee differs from a stew in this particular only, —the meat is browned before the water is put in the kettle.

Veal Pot Pie.

Cut the veal in medium-sized pieces and simmer in a small quantity of water for an hour. Always choose fat veal. Pour off most of the water, but leave enough to cook dumplings, then thicken and season the poured-off broth, lift the dumplings carefully, and pour over them the gravy.

Dumplings.

Class rule: One-half cup of flour, one-eighth teaspoonful salt, one level teaspoonful of baking powder, one-quarter cup of sweet milk, one level teaspoonful of butter.

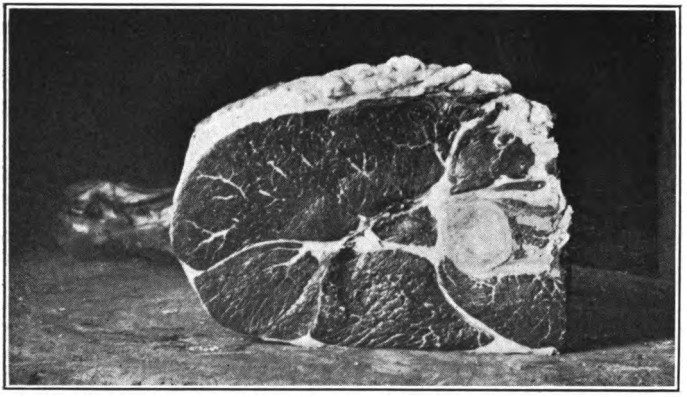
Home rule: Two cups of flour, one-half teaspoonful of salt, four teaspoonfuls of baking powder, one cup of sweet milk, four teaspoonfuls of butter or lard.

Mix the baking powder with a little of the flour. Rub into the remaining flour the butter, add the salt and the

baking powder, then put in the milk, stirring as little as possible. Flour the molding board, turn the dumplings onto it, and, without kneading, roll and cut into shapes, and put to cook, or drop into kettle from a spoon.

To Cook Tongue.

Soak in plenty of cold water until sufficiently freshened, then skewer the two ends together and put into boiling water and cook gently until tender. Remove from the water in which it has been cooked, plunge into cold



Beef Round.

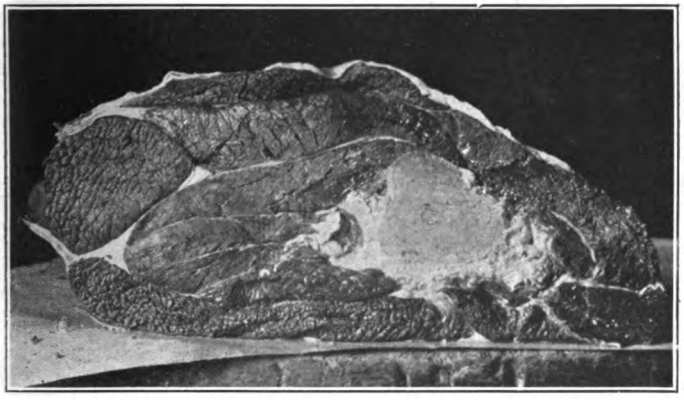
water, and let lie a few minutes. Then cut the skin on the under side and peel it back both ways. Serve with a brown tomato sauce made in the following manner: Brown together in the saucepan one and one-half tablespoonfuls of butter and two of flour, add one-half a cup of brown soup stock, and one-half cup strained tomato, cold. Stir constantly until it has boiled a few minutes. Thicken with one and one-half tablespoonfuls of flour stirred into a little water. Smoked tongue is better than pickled tongue. If fresh tongue is used no soaking is necessary.

To Prepare a Calf's or Sheep's Head.

Soak and clean thoroughly, put into boiling salted water, and cook until tender. Take off all edible meat, and chop with the brains. Season to taste with onions, salt and pepper, moisten with white sauce (page 53), cover with buttered crumbs, brown in the oven, and serve hot.

To Cook a Pot Roast of Beef.

Choose a cut which is too tough for an oven roast. The crossrib cut is usually so. Sear the cut surfaces, and stew in a very little water until tender. Then let the water cook entirely out, and brown the meat in the kettle.

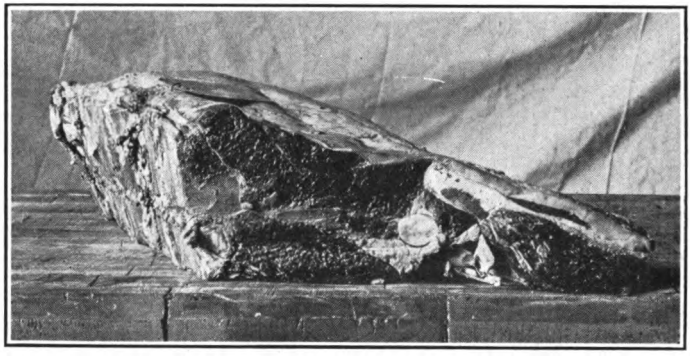


Last Cut Round Steak.

BROILING.

There are several reasons why some articles of food should be broiled, or why broiled food should sometimes be eaten. One important reason is that some articles of food are cooked most perfectly in this way. Another reason is that man desires variety in the manner of cooking his food, as well as in the articles constituting his diet. Broiling is a sudden searing and browning of the surface of the food. Cooking the food on the outside thus quick-

ly hardens the albumen, and forms a coating over the surface, shutting in the juices, and the seared surface is kept intact by frequent turning as the food cooks. Broiling can be done over a clear blaze, or on a bed of live coals, but the use of the broiler or gridiron simplifies the matter very much. Where much broiling is done a charcoal burner is desirable, but for the ordinary family the light wire broiler or toaster is well adapted to the purpose. In order to use such a broiler over the fire in the common range or cook stove, have a clear bright fire, and open the main damper, so as to create a good draft and allow the escape of smoke.



Wedge Bone Sirloin of Beef.

To Broil a Chop or Steak.

Remove one of the front griddles and place the article to be broiled in the broiler over the open fire. Turn the broiler frequently to prevent the meat burning, and to keep the juices from being forced through the surface, and also to cause it to cook evenly on both sides. If the drippings from the fat of the meat create a blaze remove the broiler a minute until the blaze subsides. A deep cover laid over the meat will retain the heat and facilitate the broiling. When the fire becomes dull, if coal is used, add a sprinkle of fresh coal, replace the griddle, and use the other side of the stove, which, having been protected

from the air, will be clear and bright. Both griddles should never be removed at once, because, in order to continue broiling there must be an opportunity to change the broiler frequently to a hot fire. A steak three-quarters of an inch thick will cook in eight minutes, and should be turned about twenty times. Such a steak, of course, will be rare, but Prof. Atwater says that raw meat is more quickly and completely digested than meat boiled, roasted, or smoked, but the flavor induced by cooking excites the secretion of digestive juices, thus facilitating the further

Short Loin. Beef.

disintegration in the alimentary canal. The above seems an argument in favor of acquiring a taste for rare meat if one desires the best results, as this combines the easy digestion of the raw meat with the rich appetizing flavor developed by cooking.

Experiment has proven that a steak one and one-half inches thick may be successfully broiled in a hot oven if seared on both sides before being placed in the oven. It should remain in the oven about eight minutes. If a steak is fat, butter does not improve it.

To Pan Broil a Steak or Chop.

Before broiling a steak in any way, remove the tough outer edge, as it is apt to curl, and is better off. Remove the outer skin from a mutton chop because the flavor is better. Have a common griddle or spider smoking hot, and put the meat on it without grease of any kind. Let cook until it loosens from the spider, then turn and sear on the other side. After that, turn it very often until it is done as much as you wish to have it. It is better never to have a steak cut less than three-fourths of an inch thick, as a thin steak is very dry, and has not so good a flavor as a thicker one. When the steak or chop is ready to remove from the griddle, season with salt and pepper, and if the steak is lean, put a little butter on a warm platter with the salt and pepper, lay the steak on these a minute, then turn it over. Always serve a broiled steak at once.

To Broil Hamburg Steak.

The round steak, which is used for hamburg, should be chopped very fine and made into cakes not more than one and one-quarter inches thick. Have a spider, smoking hot, put a small piece of butter in the spider and lay the hamburg on this. When nicely browned, and before the juices begin to exude, put a bit of butter on the upper side of the steak, and with a limber knife carefully turn and brown it on that side. It should be turned as you would any steak until done as desired. Do not cook too much, or the steak will be dry and tasteless. When done, lift to a warm platter, sprinkle with salt, and serve.

To Broil a Chicken.

To prepare a chicken for broiling, split down the back and cut off a part of the backbone in order that the chicken may lay flat, and press it with the rolling pin to flatten the breast bone somewhat. Put in a wire broiler over the fire inside down, and broil as a steak. A small, young chicken, and no other, is fit for broiling. It will cook over a brisk fire in from fifteen to twenty minutes.

If the fire is not in good condition, the chicken will be imperfectly cooked and dry.

To Broil a Chicken in the Oven.

Lay the chicken, prepared as above, in a pan or spider just large enough to hold it, brush the inside over with clarified butter, lay skin side down, and put into a hot oven on the grate. It should be nicely browned in twenty-five minutes. To ascertain whether it is done through, pierce with a toothpick; if the juice is red, cook longer in a cooler part of the oven. When done, put on the platter, dot with bits of butter ,and jab with a knife, that the melting butter may season the chicken.

To Broil Squabs.

Prepare and broil squabs same as young chicken.

To Broil Woodcocks.

These birds usually have the long bill run through the thigh joints, the head being always left on. Broil in wire broiler over the coals, or in the oven, as a chicken.

Fish and Boning Knife.

To Oven Broil a Fish.

Remove the scales, if any, also the head and fins. Wash the fish, and wipe the water from it. Begin at the head end, and with a dull knife scrape the meat back from the ends of the bones and follow them to the back bone on one side, clear to the tail. Then treat the other side in the same way, and take backbone and ribs out together. Where there are many small bones, do not try to get them all out, but only the main ones.

Lay the fish flat on a pan just large enough to hold it, brush the flesh side with clarified butter, and cook in a very hot oven until it flakes, or lay slices of bacon over the surface before putting the fish into the oven. When done, spread with parsley butter, and serve. Or serve with tartare sauce, or serve plain with lemon points. Serve cold slaw or sliced cucumbers with broiled fish. Potato balls in cream are always a pleasant accompaniment.

Parsley Butter.

Three tablespoonfuls of butter, two tablespoonfuls of chopped parsley, one tablespoonful of lemon juice, salt and pepper to taste. Stir all well together, and serve on the hot food.

To Broil Oysters.

Select the largest oysters, see that they are free from shells, and dry on a towel. Season each oyster, brush over with butter, and broil in a close-wired broiler over a hot fire.

Broiled Mackerel.

If the mackerel be fresh see that it is perfectly cleaned, wash and wipe dry. Split open on the under side, sprinkle lightly with salt and lay on a buttered gridiron over a clear bed of coals with the inside next the fire. When brown turn it over and brown on the other side. When done place on a warm platter and put bits of butter over it. Cover closely for a short time and serve.

If the mackerel is salt, freshen it in water over night, in the morning turn the water off and wash in clean, cold water, then proceed as with the fresh fish.

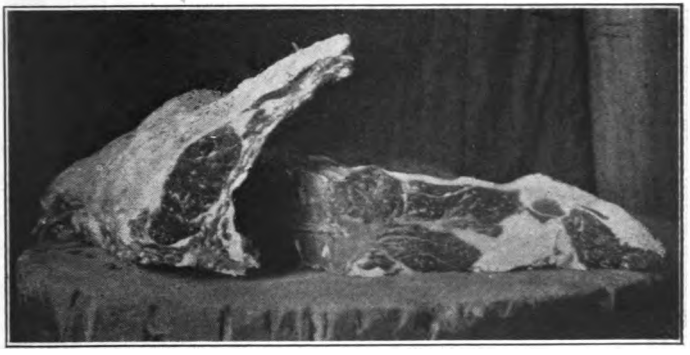
To Broil Bacon.

Cut the bacon very thin, put into a very hot spider and brown, then turn and brown on the other side, take from spider and place on a cloth or brown paper, and set in the oven a few minutes.

ROASTING.

The principles underlying broiling and roasting are the same. In each case a piece of tender meat is used, a great heat is brought to bear, so that the outer surface may be kept intact, and the result is a piece of meat with a flavor that can be gotten in no other way. The meat should be seasoned when it is carved. When the meat is basted and the seasoning cooked through it, there is little difference in the flavor of an expensive and a cheap piece of meat.

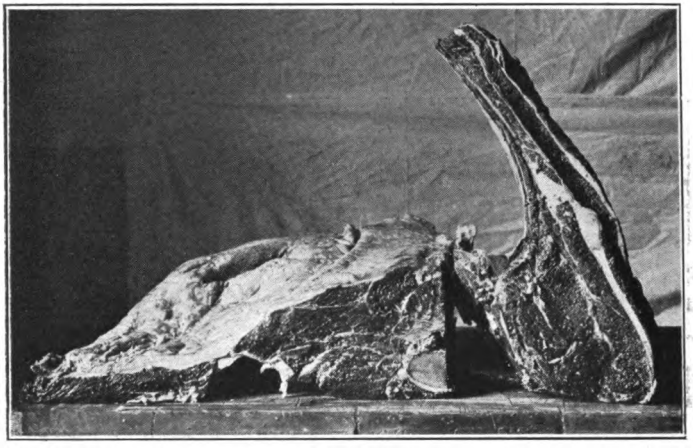
Beef, mutton and venison are all roasted in the same way: Remove the outer skin in order to rid the meat of



Ribs and Short Loin.

dirt and unpleasant flavor. This is especially necessary in mutton, as much of the unpleasant taste lies in this outer skin. Do not allow the butcher to remove the bones, as this gives more cut surfaces from which the juices may exude, and there will necessarily be some meat cut away with the bones, and the bone itself adds flavor to the roast. A writer who has given the matter of household waste some study says that the waste begins in the meat shop. He states that he has seen four and one-half pounds of trimmings taken from a sixteen-pound roast. These trimmings, which consisted approximately of two and one-fourth pounds of bone and one-half pound of tendon and

gristle, which would add flavor and nutrition to a roast, and one-and three-fourths pounds of meat, of which one pound is lean, and the other three-fourths fat, were left for the butcher to sell to the soap man, or get rid of as best he could. He assumes the nutritive value of the ingredients to amount to twelve and one-half per cent. of the whole, hence twenty-eight cents worth of nutritious material, besides bone and tendon, were left for garbage.



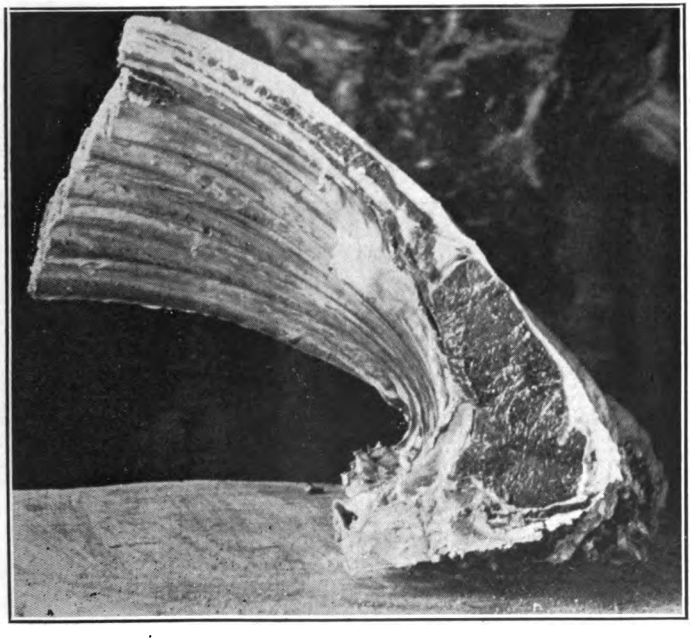
Prime Ribs and Short Loin of Beef.

Before putting the meat into the oven, the cut surfaces should be seared, in order to shut in the juices. Oven for roasting same as for bread. Braise the end pieces, which contain the bones and are not juicy. Braising can be successfully done in the oven, and a covered pan is good for this purpose. Do not baste the meat while cooking. Fear is at the bottom of much trouble, and the cause of unnecessary labor, and many baste the meat for fear it will burn.

To Roast a Piece of Beef.

Wash the outside or skinny part of the meat with a white cloth, but do not put the cut surfaces into the pan

of water, as this will prevent their browning nicely when seared, and there has been nothing to soil them. Measure the meat before cooking and for every inch in thickness, allow fifteen minutes in the oven after it begins to cook, if wanted rare. If it is desired better done, give it twenty minutes to the inch. Have the oven hot enough so that you can hear the meat sizzling as you listen outside



Small End Rib Cut of Beef.

the oven door, but not hot enough to burn. Sufficient heat can be used without discoloring the fat, and if the meat is well seared, very little juice will escape into the pan.

Yorkshire Pudding.

Beat three eggs until very light, put in a scant teaspoonful of salt and one pint of milk, pour one-half cup of the mixture over two-thirds of a cup of flour, and stir to a

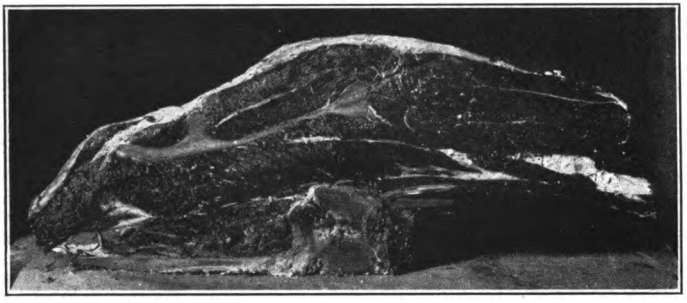
smooth paste, then pour the rest in, and beat well. Bake in a hot gem pan forty-five minutes, or pour into the roasting pan under the meat, which rests on a rack, and bake.

Braised Beef.

Choose a cut of beef which is too tough for oven roasting. The lower part of the round is good for this purpose. Put it into a covered roasting pan, and when well browned put in a little water, and keep covered until done. Season when about half done.

Tomato Sauce.

Brown together in a saucepan one and one-half tablespoonfuls of butter and two of flour. Add one cup of



Beef Shoulder Cut.

liquid from the roasting pan, and one-half a cup of strained tomato, and let boil up together. Thicken with one and one-half tablespoonfuls of flour, mixed with a little water, and stir until smooth and cooked.

To Roast Spare Ribs of Pork.

See that they are clean, then break the bones in the center of their length, season with salt and pepper, and bake in a hot oven until done.

To Roast Pork.

Put into the oven in a dry pan, same as beef, and when brown, baste same as chicken, except that, in making bast-

ing for pork, leave out the butter. An easy way to baste veal or pork is to turn it over in the pan containing the basting. Pork or veal is seasoned before putting into the oven, because it is necessarily cooked a long time, and cannot be served juicy.

To Roast Veal.

Proceed in the same manner as for pork, except use half as much sugar as salt in seasoning the meat. It is well to use a dressing with veal, and make same as chicken dressing. It is better never to reheat a roast of juicy meat, as mutton, lamb or beef. Better use cold or cook a small roast.

To Roast a Leg of Lamb or Mutton.

Scrape the flesh back from the small bone at the shank end, and remove at the joint, if this has not already been done. Remove the thin outer skin without cutting into the flesh. See that the joint is clean and dry, sear the cut surfaces by pressing for a few minutes on a smoking hot spider, put into the oven, and keep hot enough to smoke a little and sizzle, but do not let burn. It should cook without basting, and will, if not too hot. The basting draws the juices out of the meat, and leaves it dry. Serve roast lamb with mint sauce, currant jelly, grape jelly, or barberry jelly. A leg of lamb usually requires about one and one-fourth hours, but if wanted well done, give fifteen minutes longer. Serve the meat hot, and let the guests season for themselves, then the juice will not remain in the platter. A leg of mutton will need to cook about fifteen minutes longer than a leg of lamb.

Serve with mutton some acid jelly. The vegetables which may be served with it are many, as browned sweet potatoes, hubbard squash, green peas, sliced tomatoes, etc. Stewed peaches, browned apples, or apple sauce may be used instead of jelly, if desired.

Mint Sauce for Roast Lamb.

One heaping tablespoonful of finely-chopped mint, one cup of vinegar (scant). Season to taste with salt and pepper, put mint and vinegar together, heat to the boiling point, and serve.

To Bake a Fish (with Dressing).

Bone, or leave the bones in. It is easier carved with the bones out. See that the fish is clean and dry. Make a dressing by using bread crumbs, and seasoning them with salt and pepper to taste, and to each cup of crumbs use one-fourth of a teaspoonful each of grated lemon peel and nutmeg. Season them a little more highly with salt and pepper than you want them when done, as the fish will take up some. Season the fish also, moisten the crumbs with melted butter until they taste well, but do not overdo. Fill the fish comfortably full, sew up, and lay pieces of breakfast bacon or salt pork over the top of the fish as it lays on the side in the baking pan, or, better, on the fish sheet, put slices of meat under the fish also. Bake in a very hot oven. It should cook in about thirty-five minutes, if a medium-sized fish.

Drawn Butter Sauce.

One cup of hot water or broth, one tablespoonful of flour, one level tablespoonful of butter, one-half teaspoonful of salt, one-half saltspoonful of pepper. If the broth is already partially seasoned, add these to taste. Put together as White Sauce No. 1. Serve with baked or boiled fish.

Fish Turbot.

One pint of whole milk, three level tablespoonfuls of flour, two level tablespoonfuls of butter, one teaspoonful of salt, a little pepper, one egg white, one-quarter teaspoonful of parsley, one and one-half pounds of any white fish,—halibut preferred. Rub salt on the fish, and steam until thoroughly done. Take out bones, remove the skin, and shred fish very fine. Heat the flour and butter

in a saucepan (do not let it brown), pour in the milk, and cook until it thickens and does not taste of raw flour. Cover and set away to cool (after seasoning). When cool, fold in the egg white, which has been beaten stiff. In a buttered baking dish put a layer of the shredded fish, cover with the white sauce, and continue in this way until all the fish and sauce are in. Cover the top with buttered crumbs, put in the oven, and bake fifteen or twenty minutes, when it should be a nice brown.

Fowl in Baking Dish.

To Prepare and Roast a Chicken or Turkey.

Cut the skin at the back of the neck to remove the crop. After cutting around the vent, remove the entrails by making a cut under one of the second joints,—the one most convenient for you. Wash well inside and out with cold water, and wipe dry with a clean, white cloth.

Make a dressing of bread crumbs, seasoning with salt and pepper, and moistening with melted butter. Do not use enough butter to make the crumbs adhere. Do not put in water and do not pack the crumbs in the chicken, but leave a little room for the dressing to swell. Season highly, as some seasoning will be taken up by the chicken. After filling, lap the skin at the back of the neck, and bring over the end of the neck bone, and pin with a skewer, or tie. This closes the opening made in removing the crop. Tie the drum sticks together, and put in a

skewer, or tie down without a skewer, thus closing the opening under the second joint. Brown the chicken nicely, then begin basting. Make basting by stirring together one tablespoonful of butter and one and one-half of flour, pour on one pint of boiling water, and stir. Season well with salt and pepper. The length of time necessary for cooking depends on the age, as well as size. A young chicken, weighing two and a half pounds, dressed, requires about three-quarters of an hour. Choose only those chickens for roasting which are young enough for the tip of the breast bone to bend readily. For older ones than this, use a covered pan or kettle and braise rather than roast.

Basting for Fowls—Class Rule.

To make basting gravy, take one teaspoonful of flour, one-half teaspoonful of butter, and rub together. To this add one-half cup of liquid, and season with salt and pepper, and let boil until smooth.

A very thin gravy makes a good basting material. A big turkey would require a quart of basting gravy.

A turkey weighing eight pounds will usually require about three hours to cook. Serve with cranberry sauce or currant jelly.

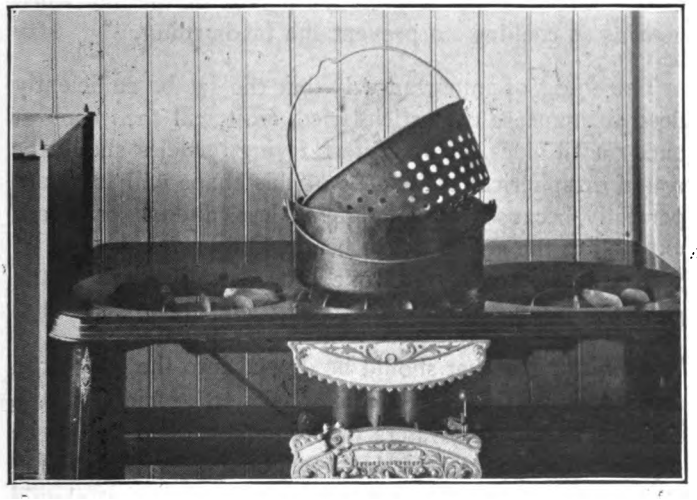
With roast chicken or turkey serve scalloped oysters. Oysters in dressing are apt to be too much cooked. Vegetables which are nice with chicken and turkey are white potatoes, tomatoes, sweet corn, sweet potatoes, and slaw.

A covered pan is never necessary, but after the edible is brown, it may be used, especially for poultry, veal and pork, because the poultry is protected by the skin, and the others must be cooked slowly and a long time. In juicy meats, the steam softens the surface, and allows the juice to run out.

Seasonings for Meat Dressings.

Thyme is used mainly in broths and soups, but it may be used in meat dressings also. Lemon thyme is less pun-

gent than the common thyme, and is especially nice in veal dressings, if one wishes thyme at all. Sweet marjoram or knotted marjoram is less delicate than lemon thyme, but is the best of marjorams for this purpose. When sage is used, the common green is best. Sage is good with pork, as it improves the flavor of the meat. With chicken and turkey, celery is a more harmonious flavor than sage.



Frying Kettle and Basket.

FRYING.

By frying we mean cooking in deep fat. Any pure, clear fat that is free from strong odor will answer the purpose. In order that the frying be properly done, (1) the fat used for frying must be clarified unless already clear. To clarify fat, put where it will melt, and slice into it one small raw potato. Cook until it ceases to bubble, but do not make it hot enough to burn the potato. Strain through a fine sieve, pouring it carefully from the sediment. (2) The temperature of the fat must be high

enough to sear the surface of the article cooked as nearly instantaneously as possible, in order that the juices be preserved inside the food, and consequently the flavor be unimpaired. The quick cooking prevents all the absorption of fat, which is a very important matter in fried food.

Before there is any danger of the fat burning, a slice of raw potato should be dropped into it. As soon as the potato becomes brown, the grease is hot enough for frying most things. Keep a piece of potato in the fat when nothing is cooking, to prevent the fat burning.

The thing of importance is that the fat be sufficiently deep to immerse the article fried, as it will then cook at once on all sides. For perfect frying, articles should be round or spherical, as articles of this shape will fry more perfectly because the sides touch less, and all parts are exposed to the action of the heat. Only a few articles of food should be put in at one time, lest the heat of the grease be reduced below the frying temperature.

The frying basket should be dipped into the fat before the food is put into it. If the articles to be fried are of a delicate nature, as oysters or croquettes, they should be put into the basket, the basket should then be lowered slowly into the hot fat, but in general the basket should be lowered empty, and the articles to be fried put into it one by one.

Fried Food may be Divided Into Three Classes,—First, that class of food which requires no protection to prevent the absorption of grease, as potatoes and rice. Second, those foods which need protection, as chicken, fish, etc. Third, that class which is perfectly soft and moist, or of perfectly smooth surface, and which, on account of one or more of these conditions, must be given all the protection possible. Articles of this class of foods should be rolled in a mixture of equal parts of wheat flour

and cornmeal, in order that the surface be rendered dry and rough before applying the coating of egg. To this class belong oysters and croquettes.

Fried Potatoes.

Pare the potatoes, cut into the desired shape and soak in ice water until wanted for frying. Heat the grease in the frying kettle, and test its temperature with a slice of potato. In the meantime drain the potatoes in a colander, and shake in a towel to remove the moisture. Lower the basket into the grease, and add a few slices of potato at a time, until the bottom is covered. The rapidity with which the potatoes may be put in must be determined by the appearance of the fat. If the surface of the liquid becomes covered with bubbles, let it become hotter before adding more food, as the bubbles indicate that the grease is not hot enough. When the potatoes are done, lift the basket, shake the grease off, and turn the articles into a dish lined with several folds of cheesecloth. Serve on a napkin on a platter.

Potato Straws.

Potato straws must be well cooked to render them crisp. Use long potatoes and cut into slender, matchlike strips. Soak them in ice water for half an hour after cutting before frying. Such treatment removes much of the food value, but the straws look better.

To Fry Fish.

Cut into pieces of a suitable size for serving, and coat with a grease-proof coating made by beating two eggs with four tablespoonfuls of water until well mixed, but not light. Season each piece of fish, dip in the egg, coat with bread crumbs and fry.

Small fish are fried without cutting. Young chicken, and tender veal may be cooked in the same way. Fish for frying must be dried thoroughly, and dredged thickly with flour before being brushed over with egg and bread crumbs.

To Fry Oysters.

Choose oysters of the largest size, and dry on a white cloth. See that they are free from shells. Season the oysters with salt and pepper, and roll in cornmeal. Then dip in the egg coating, as for fish, and cover with very fine, light bread crumbs. Coarser crumbs cannot be used for this. They must be very fine, and from the inner part of the loaf. Lay the coated oysters carefully on the bottom of the frying basket, lower into the hot grease. The coating should brown in a very short time, when the oysters will be done. Oysters and croquettes should have the fat very hot, because they are so easily cooked.

Larding, Meats, etc.

Lean meats which are inclined to be rather dry are the ones usually larded, as fillet of beef (the tenderloin), fillet of veal (that cut from the thick portion of the leg), roast chicken, turkey, grouse, etc. The object of larding is to give the flavor of fat pork in a small degree to the article cooked, and also to keep the surface oiled, that it may not become so hard. Strips of salt pork are sometimes simply laid on the roast while it cooks. Sometimes gashes are cut, and strips of salt pork laid in them so that the fat may penetrate and flavor the interior of the meat somewhat.

Use firm salt pork, and remove the rind. Then cut parallel with the rind, strips of fat, free from lean, and throw into a basin of ice water. Make these strips about one-fourth of an inch wide, one-fourth of an inch thick, and two inches long. Procure a larding needle of proper size, insert the lardoon, and push well up into the needle. Insert an iron skewer into the flesh at the tip of the breast, making it about half an inch below the surface, and take a stitch an inch long, and draw lardoon into place. In larding a fowl, begin at the tip of the breast and make two rows up the breast to the wings on each side of the breast bone. Put one or two rows on the

legs, beginning with the drum stick, and running up the second joint to the body. In larding a fillet, put the rows of lardoons about an inch apart. For larding birds, use a smaller needle, and proportionately smaller lardoons.

To Fillet a Fowl.

After the fowl is dressed, place it with the head toward you, and remove skin from the breast. Then cut straight in a line from the middle of neck to the point of the wishbone. Follow the wishbone down and separate the meat from the wing bone, and loosen from the side, thus removing one-half the meat on the breastbone. This can be separated into two fillets, one smaller than the other.

To Fillet a Fish.

Remove skin and bones, and if the fish is large, cut each half into two parts lengthwise. If the fish is small, leave each side whole. In any case, roll up, bread and fry.

References—U. S. Dept. of Agr., Farmers' Bulletin No. 34, pages 19 and 20; U. S. Dept. of Agr., Office of Experiment Stations, Bulletin No. 21, pages 13, 72, 74, 81 and 82; U. S. Department of Agr., Office of Experiment Stations, Bulletin 102, pages 63 and 64.

CHAPTER XVI.

SAUTEING.

Sauteing is a term used to describe the manner of cooking food in a small quantity of fat. For sauteing, one needs a fat which will bear a high temperature without burning. Butter or drippings, when used for cooking food, should always be clarified.

To Clarify Butter.

Put in the saucepan over the fire, and let cook until the scum can be removed, then pour off the liquid carefully from the sediment which settles in the bottom. To clarify drippings, put in a kettle over the fire, and cook until the water is out, then pour into a vessel of clear water, let cool, take out the cake of fat, scrape the bottom, and with a clean cloth wipe off all water, and repeat the process if necessary.

To Saute Salsify.

Cook the salsify in salted boiling water, drain, dry, season, and mash. When cooled a little, mix with each pint of salsify one egg well beaten and seasoned. Form the mixture into cakes, coat with egg and crumbs, and put into a spider well greased with fat (clarified butter, drippings, ham, or bacon fat), brown on both sides, and serve hot.

To Saute Cabbage.

Chop cabbage moderately fine, put two tablespoonfuls of butter in the bottom of the kettle, put in three pints of shredded cabbage, and just enough water to keep from burning. Cook closely covered until tender, season with salt and pepper, and serve.

To Saute Parsnips.

Cut into slices about one-half inch thick, steam until tender, and add one teaspoonful of sugar to two tablespoonfuls of fat, and brown the parsnips in this on a spider. Or treat cold mashed parsnips same as oyster plant. Use butter and drippings mixed in sauteing parsnips, because they will have a better flavor.

To Saute Sweet Potatoes.

Remove the skin from cold sweet potatoes, sprinkle over them a little salt and a little sugar and fry in butter. Be careful not to let them burn. Use clarified butter.

To Saute Potatoes.

Slice cold boiled potatoes lengthwise in one-fourth inch slices, season, and brown on both sides.

Sauted Potato Balls.

Put one pint of cold mashed potatoes in a little milk or cream in a saucepan, and mix and stir potatoes until they are free from lumps, but not actually hot. Beat one egg light, and add enough of it to the potatoes to make them adhere. Form into cakes, and brown on both sides.

Hashed Brown Potatoes.

Chop cold boiled potatoes as for hash, and season well. Use white sauce to moisten so that they will stick together, but be careful not to make too moist. May hash dried bread, and use with them in any proportion liked. These potatoes may be varied also by leaving out the bread, and seasoning the hashed potatoes with onion and parsley before sauteing them. Cook until brown on bottom in a spider coated with crumbs, and turn out like an omelet.

To Saute Summer Squash.

Summer squash, when young, may be sauted. Wash and wipe, then cut in slices half an inch thick, season each

with salt and pepper, brown in plenty of clarified butter, and cover to steam, if not tender when brown.

To Saute Onions.

Peel the onions, slice crosswise, have the fat hot in the spider, put the onions into it, season, and cook covered until tender, stirring as needed.

Scotch Haggis.

One-half cup of ground liver, two tablespoonfuls of picked-up suet, three-fourths cup of water, one-eighth teaspoonful of salt, one-half cup (generous) of rolled oats. Boil the liver in a lump in salted water, and grate when cold. Pick the suet up fine, and add the liver to the rolled oats. Have the water boiling in the upper part of the double boiler, stir the cereal, liver, and suet in, and when it ceases to settle, put into the hot water in the lower part of boiler, and cook one hour. When cold, saute like mush.

Scrapple.

One large hog's head,—one from a hog weighing about two hundred pounds,—cut just behind the ears. Remove all undesirable parts. Soak several hours in slightly salted water, and boil until the meat falls from the bones. Remove the meat from the liquor and let cool. Strain the liquor, and when cold, skim off the grease. Heat the liquor, season it, and pour in hot water until the quantity of liquor equals two gallons (generous). Into this put the hashed meat, and season. Heat to boiling, and stir into it cornmeal until it is stiff. Two cups of flour should be mixed with the cornmeal. Cook until the fat can again be seen rising to the top, then pour into pans lined with white cloth and let cool. Saute same as mush, or put the scrappel cut in slices into a hot spider, and brown in its own fat.

To Saute Cold Mush.

Cut mush of any kind into slices, roll in egg and crumbs, and brown on both sides in a hot spider containing a little fat. Bacon or ham fat is best.

To Saute Bread.

Break an egg into a bowl, and beat until well broken. Add to it one cup of sweet milk, and mix the two. Season the liquid to taste. Dip slices of stale bread in this, and saute in hot fat in a spider until well browned on both sides.

To Saute Chicken.

Cut the chicken into pieces of the proper size for serving, season each piece with salt and pepper, roll in flour, and place in the hot fat until the bottom of the spider is covered. Brown on both sides, then put in a little hot water, cover closely, and draw to the back of the range and let cook through. When done, remove the chicken to a warm platter. Put into the fat two tablespoonfuls of flour and stir until mixed, then put in one cup of milk or chicken broth, stir well, and when it is thick, and the flour is cooked, season and serve. Saute prairie chickens same as chicken.

To Saute Rabbit.

Proceed in the same way as for chicken.

To Prepare and Saute Sweetbreads.

Remove the inedible parts. If the sweetbreads are bloody, soak in cold water a few hours. When ready, put to cook in boiling salted water and cook until they can be easily pierced with a toothpick. If you wish them white as possible, put into cold water and let stand a little. When cold, cut into half-inch thick slices, cover with egg and crumbs, and saute in hot bacon fat. May serve bacon with the sweetbreads.

Sauted Hash Balls.

One cup of hashed meat, one cup of mashed potato, one egg, whipped. Season to taste. Form into balls, and saute in a little fat.

To Saute Ham.

Cut the slices very thin, trim off the rind, and a small shaving, all around the slices. Lay the pieces on a dry but smoking-hot spider, and brown on each side, then put in a very little water, cover closely, and let simmer a few minutes to cook through. Drain off the fat before serving.

To Saute Fish.

Prepare the fish for cooking, cut into pieces suitable for serving, season with salt and pepper, roll in flour and cornmeal, equal parts, put into the hot fat, and brown quickly on both sides, then draw to a cooler part of range and let cook through.

To Saute Fish Cakes.

After the codfish has been soaked, shredded, freed from skin and bones, and cooked, if necessary, mix with an equal amount of potato, either mashed or hashed fine, and to a pint of the mixture add two tablespoonfuls of sweet cream or milk, and one tablespoonful of butter. Form into cakes, put into a spider with a little hot fat, and brown on both sides. Use any good-flavored drippings for the frying fat for these.

To Saute Liver.

Calf's liver is the best. Remove the inedible parts and cut the liver into slices half an inch thick, put into a pan, pour boiling water over them, drain, season each slice, cover with flour, and saute in bacon fat until done through. Bacon and liver are appropriately cooked and served together.

To Saute Liver Balls.

One cup of cold liver, minced fine; one tablespoonful of cold bacon, chopped; one teaspoonful of finely-minced parsley, one teaspoonful of finely-minced capers, one teaspoonful of finely-minced pickles, one-half teaspoonful of finely-minced onion, salt and pepper to taste. Saute in bacon fat.

Cold Meat Scrapple.

Make a cornmeal mush by using one and one-half cups of water, one-fourth cup of cornmeal and one-half teaspoonful of salt. Cook the mush about twenty minutes, then stir in three-fourths of a cup of fine hashed meat, cook ten minutes, turn into a granite pan. When cold and firm, cut in slices and saute like mush. Serve while hot.

To Saute Eggs.

Put two tablespoonfuls of ham or bacon fat in the spider, break the number of eggs required, and slide from the plate into spider, let cook a few minutes, then put in two tablespoonfuls of water, cover closely, and let cook until the white is set.

To Saute Veal Chops.

Trim the chops so that they will lay flat on the spider, season them to taste with salt and pepper, sprinkle over them half as much sugar as salt, and dredge with flour. Put two tablespoonfuls of butter and two of beef drippings into the spider, and when smoking hot lay the chops in and brown them on both sides. Then add one-fourth of a cup of water, cover closely, and let cook slowly for fifteen or twenty minutes, uncover, let the water evaporate, and serve. Pork and veal are considered more wholesome when very thoroughly cooked.

To Cook Pork Chops.

Have the chops cut one inch thick, as the meat will be more juicy and consequently finer flavored when

cooked. Lay the chops on a plate and mix in a cup the amount of salt and pepper which you intend to use for seasoning, and with these mix one-half as much sugar as salt. Sprinkle the mixture over the chops, and dredge with flour. If fat, place on a smoking hot dry spider, seasoned side up. When brown on one side turn and brown on the other side. Drain off the grease, cover the spider closely, and draw to the back of the range; put in a tablespoonful of water, and let simmer until done through. Lift to a warm platter, put in two tablespoonfuls of milk or cream, stir well, pour over the chops, and serve. Hot apple sauce is always relished with fresh pork.

To Cook Mutton Chops.

Have the chops cut the same thickness as the pork chops, and for the same reason. It is best, in preparing any chop or steak for cooking to remove the outer skin-like tissue, as it removes any dirt which may adhere to the meat. In mutton the strong flavor is largely due to the outer skin, and the fat lying near it. When ready, cook in the same way as pork chops, except omit the sugar. Apples baked without the skins are much relished with mutton or lamb chops.

To Cook Frozen Meats.

Frozen meats should be thawed before cooking, otherwise the cold interior will require a heat so long continued as to overcook the outer parts of the cut. It is usually best to place the meat for several hours at a temperature of about eighty degrees, protected from the air, that it may thaw gradually; but this cannot always be done. To cook a frozen steak or chop, have a hot spider containing a little fat, place the steak in this, and let it brown on both sides. Then pour into the spider a few tablespoonfuls of water, cover closely, draw to a cooler part of the range, and allow to cook thoroughly by means of the steam produced. When almost done, sprinkle salt over the surface of the steak, turn the meat, and lift to a warm

platter, pour the gravy over it, and put a few spoonfuls of cream or hot water in the spider, stir, and pour this into the platter. A frozen roast, if carefully prepared, is usually best cooked as a pot roast, or roasted in a covered pan in the oven. In either case, put a little water in the bottom of the vessel, and let it be boiling on the range. Place the meat in the water, and when one surface has cooked a little, turn the meat and cook another surface, until all cut parts are seared. This will help to shut in the juices and render the joint more moist. It is best to leave the meat unsalted, and let each guest salt it to suit his own taste. If salt is used while the meat is cooking, some of the juices are lost on account of it. After it is seared, put on the close-fitting cover, whether the meat is to be cooked in a kettle on the range or in a pan in the oven. Cook slowly until almost done; then allow the water to evaporate, and brown each surface of the meat before serving.

Beef Balls with Horseradish Sauce.

One cup of cold beef chopped. Moisten with a very thick brown gravy, enough to make stick together, and season. Shape into cakes and saute in hot fat. May season the balls like croquettes, if desired. Serve with horseradish sauce.

Sauteing Fruits.

Pare, core, and slice apples, and saute same as onions. The apples may be sliced without paring, if desired.

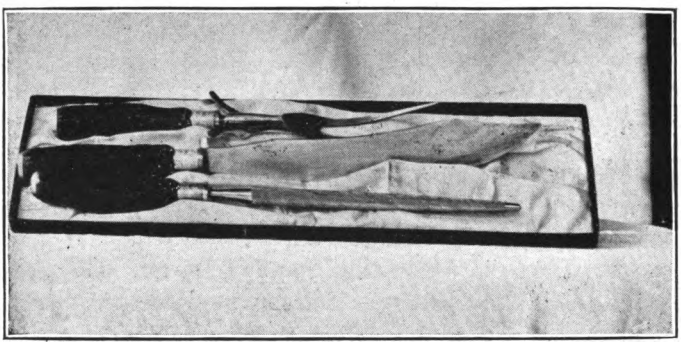
To Saute Bananas.

Peel and cut each in three pieces lengthwise, dust them with sugar, put on a few drops of lemon juice, put into the hot butter, and brown on each side. Use clarified butter.

CHAPTER XVII.

CARVING.

In order to be successful in any undertaking, and especially in one which must be performed in the presence of others, it is necessary to understand perfectly every detail of the work. There are a few general truths about carving which must be learned, but no person becomes an expert carver except by serving his apprenticeship well. There are two ways of obtaining neces-



Carving Knife and Fork.

sary practice. One and probably the only way open to boys is to obtain the privilege of carving at the family table. The assurance that all awkward haggling and mussing of table cloths will be overlooked gives courage to persevere in the undertaking. A girl can easily master many parts of this useful art before attempting to carve a fowl or joint of meat at the table.

In cutting up raw fowls for stews, fricassees, etc., she can learn to locate each joint so accurately that she will never cut into a bone when the object is to sever smoothly the leg or wing of a fowl at table.

It is an easy matter, by studying cuts of raw meat, to learn which way the muscle fibers run in different parts of the animal, and thus avoid cutting with the grain of the meat, instead of across it.

One thing more should be learned in private,—how to sharpen a knife. The carver must be sharp. No woman is independent unless she can sharpen a knife. Armed with this amount of knowledge, the task of becoming a good carver will be much lessened.

A roast of pork loin should have each division of the vertebrae made before coming into the kitchen.

The platter on which any piece of meat is served must be large enough to hold the meat and leave sufficient space for the slices when cut. A very small platter renders it impossible for the carver to work successfully without soiling the carving cloth, the table cloth, or both.

To Carve a Beefsteak.

Remove the bone, and cut the meat in narrow strips. Serve some of the choicest meat with a bit of the tougher portion, and a little fat, if there be any, to each person.

To Carve a Sirloin Roast.

Remove the tenderloin, slice as thin as practicable, and serve some of this with some of the sirloin cut in thin slices.

To Carve a Joint of Meat Boiled or Roasted.

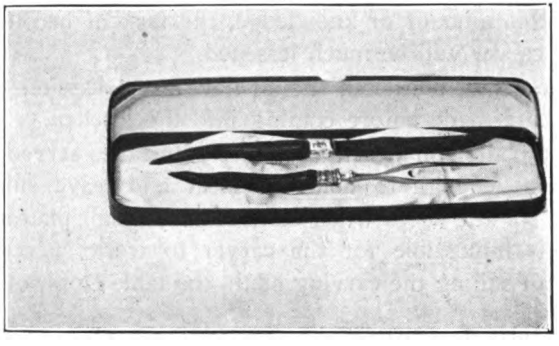
Place the platter on the table so that the thin side of the joint will be toward the carver, and the shank on the left. Place the carving fork so that the joint can be held firmly and tipped at will. Hold the meat with the thick side up, and cut as many slices as possible. Cut very thin. Separate all the slices at the lower side by passing the knife along very near the bone. Remove the fork, turn the joint, and carve the other side in the same way.

Serve roast lamb with mint sauce, roast mutton or

venison with currant jelly, boiled mutton with caper or egg sauce.

To Carve a Loin of Pork, Veal, etc.

Cut in slices as thin as possible, and pass the knife through the natural divisions of the vertebrae, which have been severed before the roast came into the kitchen.



Game Carver.

To Carve a Saddle of Mutton, Lamb or Venison.

A saddle is merely a double loin, and should be carved in the same way. If the kidney and tenderloin are cooked in the roast, as they often are, remove them with the fat, and serve a bit of each on every plate.

To Carve Cuts from the Forequarter.

The cuts from the forequarter are more difficult to carve satisfactorily than those from the hindquarter. In order to carve these cuts successfully, keep the following points in view: Locate the hidden bones, and remember the direction of the muscles. Cut across the grain, and make as good-looking slices as possible. It is really better that the pieces which are very awkward to carve be sliced in the kitchen or pantry.

To Carve a Turkey.

Place the bird on the platter with the breast up. Set the platter so that the neck is at the carver's left hand.

Place the fork astride the breast bone, and sink the prongs firmly into the flesh. Tip the turkey a little to lift one wing from the platter, and sever at the joint. Remove the other wing in the same way. Sever the drumsticks from the second joints, cutting from above. Separate the second joint into three parts by cutting off a slice on each side parallel with the bone. Let the part remaining on the bone be about three-fourths of an inch wide. Separate the bone from the body. Cut the meat of the drumsticks from the bone. Slice the breast in thin, nice-shaped pieces. Remove the breast bone by turning the tip back. Remove the shoulder blade in a similar manner. Serve portions of white and dark meat and some dressing to each guest. To finish the carving, cut through the cartilage, and separate the back from the rib pieces by turning with skin side up, and lifting the tail end with a fork while the knife rests just below the ribs, and thus break it. Cut close to the backbone, and thus divide the back lengthwise.

A chicken is carved in the same manner as a turkey, except that the legs and second joints are left whole.

To Carve a Goose or a Duck.

Geese and ducks furnish little meat except on the breast. The legs, wings, and back have a scant amount, and that is not choice. Slice the breast across the grain, in as nice pieces as possible.

To Carve a Broiled Chicken.

Broiled chicken should be divided in two parts lengthwise, and one-half served to each guest.

To Carve Squirrels, Suckling Pigs, etc.

Proceed in same manner as with larger animals of similar kind.

The loin is considered the choicest part of a squirrel or hare. The rib is the best part of the suckling pig.

References: Carving and Serving—Lincoln; Art of Cookery—Ewing.

CHAPTER XVIII.

ALBUMEN COOKING.

Eggs, meat, and milk each contain the element known as "albumen," and they each require special care in cooking to give best results in flavor of food and in capability of assimilation. Eggs are universally used as food during such portions of the year as they are moderate or cheap in price. It is a matter of regret that they are at other times discarded from the bill of fare in the form of plain eggs, and used only in cakes and such mixtures. Better leave off the cake, which is at best a questionable food, and use the eggs in their own form, since they are known to be wholesome food, and also promote good health by giving variety when it is much needed.

The hen furnishes by far the greater portion of the eggs which are used as food. The eggs of the guinea fowl, duck, and goose are used to some extent. The eggs of some wild birds are greatly esteemed. Plover eggs are much used in England and Germany. In the United States, the eggs of some seabirds, as gulls, terns, herons, and murres are gathered in large quantities. The eggs of some of the inhabitants of the water are highly prized, viz., those of the turtle, the shad, and the sturgeon. Turtle eggs are generally used to embellish the dish prepared from the turtle meat. The eggs of the sturgeon are usually preserved in salt, and made into an edible known as "caviar." Shad-roe is usually broiled or sauted, and served with the fish, or made into a salad.

Hens' eggs are prepared and served in a great many ways, and enter into the composition of many dishes.

When in skillful hands, they are unexcelled as a means of producing light and delicate cakes, palatable muffins, cornbreads, etc. With milk, they become the thickening agent in sauces, custards, puddings, etc. Whether they are used alone, or combined with other foods, the principle in cooking remains the same,—they must have a moderate, even heat. The difference in appearance and texture of eggs cooked properly and those cooked quickly in a high heat can be readily shown by the use of a test tube. Put some white of egg in a test tube, and hold the tube in boiling water until the egg is hard boiled. On examination, it will be found tough and somewhat elastic, and smaller in bulk than before heating. Cook a custard, an omelet, or an angel cake at a high heat, and the effect on the egg will be seen in a watery custard, a fallen omelet, and a flat angel cake. Take another test tube, and put the same amount of egg into it, and immerse in water, but do not allow the temperature to rise above 160° F. On examination, the egg will be found coagulated, but easily divided,—more like excellent jelly in consistency. Now take two eggs of the same size, or as nearly the same size as possible, and from the same room, that the temperature may be the same. Immerse one egg in boiling water two minutes, open it at once, and you will find a thin coating of white next to the shell, where the heat was most intense, and the rest of the white will be a milky semi-fluid or raw mass; the yolk will be fluid and warm, but raw. Boil a pint of water in a graniteware saucepan, immerse the other egg, set it on the table, and let stand six minutes. An egg which has stood in a room at summer heat, treated thus, will show a jelly-like white, scarcely cooked enough to change the flavor of a raw egg; but if taken from the refrigerator, and put into water of the same amount and temperature, the white nearest the shell will be white and creamy, and the other apparently raw. An egg taken from a room at summer heat, and immersed in a pint of water which is boiling when set

off, and left ten minutes, will give an egg cooked just a little more than the six-minute egg. An egg treated in the same way, and left twenty minutes, will give the white well cooked, and the yolk nearly all cooked.

An egg cooked in water, the thermometer in which stands at 160° to 165° F., will be stiff enough in twenty minutes so that the yolk will stand up like a marble. The thermometer must not go above 165° F., nor below 160° F., during time of test.

When an egg is cooked in the ordinary way, whether medium or soft boiled, it is allowed to remain in the boiling water until it is thoroughly cooked, and the yolk set; but the white nearest the shell is necessarily hard and horny, because the heat constantly acts on it, while that farther away toward the center of the egg does not begin to cook at once. Such an egg will be acted upon by the digestive fluids with more difficulty, because mastication divides it into small, hard bits, while the egg with the creamy white presents no such obstacle to digestive action. An egg hard boiled in boiling water shrinks more and becomes harder than either the soft or medium boiled, because subjected for a longer time to the action of the boiling water.

Those who have made experiments to ascertain how eggs cooked for different lengths of time compare in digestibility find that the time of cooking affects the rate of digestion, but does not materially affect the total digestibility of the food. The experiments were, of course, made on a healthy man. It seems reasonable to believe that an egg cooked at a temperature below the boiling point, on account of its jelly-like consistency, and the ease with which it can be divided and acted upon in the mouth and stomach, would certainly be better for a delicate stomach. It seems that a hard-boiled egg, unless thoroughly masticated, would present some difficulty to the digestive fluids, even in a healthy stomach. Ameri-

cans are rapid eaters, and consequently their food is not always well masticated.

Eggs for the table should be perfectly fresh. A stale egg has a poor flavor, and a less pleasing appearance than a fresh egg, whether in the shell or prepared in some other way. There are many stages of staleness.

A perfectly fresh egg will show a clear red when looked through toward the light. An egg in which there is a spider-like appearance has probably been set on two or three days. An egg in which dark spots are seen near the larger end has been left too long in a dirty or warm hen house, and successive layers have heated it. Eggs which have lain several weeks, or have been packed some time, may have a musty taste.

Eggs to be served in the shell must be positively fresh. A warm egg cup should be sent with each order. The egg cup may be large enough to break the egg into, or, if the guest prefers, he may have a cup so small that the egg will rest in the top of the cup, and can be eaten from the shell with a spoon, thus insuring its remaining hot, The flavor of a fresh egg is usually satisfactory, though there are cases in which improper food affects the flavor of the eggs deleteriously.

Eggs, to be perfectly fresh and nice, should be gathered two or three times a day and kept in a cool, well-ventilated place. When eggs are strictly fresh, they will keep for some time at a temperature of 60° F. Siebel states that 32° to 33° F. is the best temperature for storage eggs when packed in the shell. Eggs should never be kept with anything which has a strong or disagreeable odor, as they readily absorb whatever is in the surrounding atmosphere. For further information on preserving and packing eggs see Farmers' Bulletin No. 128, United States Department of Agriculture. In packing eggs for home use, it is better to use only those with clean shells, and pack unwashed. Eggs in bulk are sometimes kept in

cold storage. In this case, the contents of the shell are separated, the yolks beaten enough to mix them thoroughly, put into tin cans and frozen. The egg whites are packed in cans and frozen also. They can thus be bought separately if one wishes. They will not keep long after thawing.

The egg powders, etc., found on the market are not usually very satisfactory, even when eggs are high; but there are cases in which the product seems to be genuine egg, dried and coarsely ground. These give satisfactory results, but they are not always found reasonable in price.

Weight of Eggs.

The North Carolina Experiment Station, in some experiments lately concluded, has brought out the following facts: Eggs from different breeds of hens, if sold by weight, would vary from twelve to twenty cents a dozen, while a dozen eggs of the Pekin duck would be worth twenty cents a dozen at the same price per pound. This shows how foolish it is for us to use eggs by count rather than measure in our recipes for making different dishes.

Nutritive Value of Eggs.

The following table from Farmers' Bulletin No. 128 shows that eggs resemble meat and other animal foods in composition. There is not a great difference in the food value of hens' eggs and the eggs of other domestic fowls. The yolk and the white of eggs differ in the following particulars: The yolk contains much fat and a goodly amount of mineral matter. The white is particularly free from fat, and has very little mineral matter. The white contains less water and less protein than the yolk. When eggs are properly cooked they are very thoroughly digested. Eggs are valuable food, not only because of the valuable nutrients they contain, but also because they are an almost universal favorite, and there-

fore aid much in giving needed variety, and in making other foods palatable. It will be further noticed that there is practically no difference in the food value of brown-shelled and white-shelled eggs, despite the fact that they have in some places a different market value.

Average of Composition of Eggs, Egg Products, etc., and Certain Other Foods. From Farmers' Bulletin No. 128.

HEN.	Refuse, Per cent.	Water, Per cent.	Protein, Per cent.	Fat, Per cent.	Carbohydrates, Per cent.	Ash, Per cent.	Fuel value per lb. Calories.
Whole egg as purchased	11.2	65.5	11.9	9.3	.....	0.9	635
" " edible portion	....	73.7	13.4	10.5	.....	1.0	720
White	.....	86.2	12.3	0.2	.....	0.6	250
Yolk	.....	49.5	15 7	33.3	.....	1.1	1,705
Evaporated hen's egg	....	6.4	46.9	36.0	7.1	3.6	2,525
Egg substitute	.....	11.4	73.9	.3	5.3	9.1	1,480
Pudding (custard) powder	.....	13.0	2.1	3.4	80.9	.6	1,690
Sirloin steak as purchased	12.8	54.0	16.5	16.1	.....	.9	985
" " edible portion	.....	61.9	18.9	18.5	.....	1.0	1,130
Cheese as purchased	.....	34.2	25.9	33.7	2.4	3.8	1,950
Milk	.....	87.0	3.3	4.0	5.0	.7	325
Wheat flour	.....	12.0	11.4	1.0	75.1	.5	1,650

Egg and Milk Dishes.

In preparing dishes composed largely of milk and eggs, the points to be specially guarded are putting the two together when hot, and cooking at the proper temperature, and for the right length of time. When making a dish in which part of the hot milk is poured over the eggs, pour the milk in a small stream on the beaten eggs, stirring all the time, and when the bowl is full, the mixture will be so thin that it can be added to the rest of the hot milk without lumping. Such dishes must be cooked, and not too long, for the egg will shrink in the milk the same as when alone in an omelet or in the shell. When a large quantity of custard is made, as for ice cream, it must be set in cold water and stirred when removed from the fire, else the heat of the bulk will make the eggs too hard, and the custard will curdle. Dishes composed of eggs and milk are highly nutritious, and when properly prepared,

easily made use of in the body. When cornstarch or arrowroot is used in connection with milk and eggs, the starch should be mixed with the sugar and added to the hot milk, or add as much cold milk in bulk as there is starch, stir well, add to the milk, and let cook until the starch is done. For cooking dishes in which eggs and milk are used, follow the general rule for cooking protein foods,—use a low gentle heat, not too long continued. Where the yolks and whites are used separately in a dish, pouring the hot mixture, after yolks and milk are cooked together, over the well-beaten whites, usually cooks them sufficiently. Milk is changed by heat, and both flavor and digestibility are affected deleteriously by a high heat. Dishes should not be flavored too highly. Cooked eggs have a flavor which may be more palatable when modified somewhat by another flavoring material, but should not be entirely obliterated.

Soft Boiled Eggs—For Class Work.

Place a medium-sized egg in a pint of boiling water in a small saucepan. Remove from stove, and let stand ten minutes, for a soft egg, or twenty minutes for a medium boiled egg. If a number of eggs are to be cooked, boil half the amount of water in the vessel, put the eggs into it and set aside. After it has stood ten minutes, pour it off, and pour on the remaining half of the water boiling hot, cover, and let stand the allotted time.

Hard Boiled Eggs.

To hard boil an egg, put it into one pint of boiling water and let it remain there for twenty minutes. Keep the water boiling. This will render the yolk dry and mealy. Or put the egg into cold water, bring the water to the boiling point, after which allow the egg to remain fifteen minutes, which will accomplish the same result.

Dropped or Poached Eggs.

Have the water in a spider boiling hot, and salted quite

salt. Break each egg separately into a small dish and slip from this into the boiling hot water. Set on the back of the stove, where the water will remain hot, but will not boil, cover and let stand three or four minutes, or until the eggs are cooked as desired.

To Poach Eggs in Milk.

Butter the dish in which the eggs are to be poached. Put into it the milk and a little salt, let heat almost to boiling, but do not burn. Break eggs separately into a cup and slip gently into the milk to avoid breaking the yolks. When done, lift onto previously prepared toast (buttered) and pour milk over all.

Scrambled Eggs No. 1.

Break into a dish the desired number of eggs, and beat until well mixed, but not light. Put in a basin one tablespoonful of boiling water or hot milk for each egg. Pour the water into the eggs, pour slowly, and stir constantly. When mixed, put into a spider one teaspoonful of bacon fat for each egg, and when this becomes very hot, pour the egg mixture in, and stir all the time as it heats, keeping it well broken. When of a creamy consistency, season and serve.

Scrambled Eggs No. 2.

Beat one whole egg well. Make a white sauce by using one-half tablespoonful of flour to one-fourth cup of milk, cook together until it thickens, then pour it over the beaten egg and mix well; turn this into a hot omelet pan, which has been greased with one-fourth teaspoonful of butter. With a spoon scrape the egg mixture from the bottom of the omelet pan as it cooks. Just before removing from the fire, dust with salt and pepper if desired. Do not cook too rapidly.

Curried Eggs.

Make a sauce of chicken stock and cream or of milk alone, using one tablespoonful of flour and one of butter to

one and one-half cups of liquid. Season with salt and pepper and one teaspoonful of curry-powder. Remove the shells of six hard-boiled eggs, cut in halves or slices, and place them in a deep buttered saucepan. Pour the sauce over them, simmer three minutes, and serve on delicately browned toast.

Or, when the curry sauce is boiling hot, drop raw eggs into it, cover, and let set on the back of the stove four or five minutes. Serve on toast.

Baked Eggs.

Grease the sides and bottom of the baking dish or spider. Into this carefully slip the eggs one at a time from the small dish into which they were broken. Put on the the top of each egg a small piece of butter, and sprinkle over them pepper and salt.

Or, sprinkle over the eggs buttered and seasoned bread crumbs. Bake in a slow oven five minutes, or until cooked as desired. More than five minutes will bake them hard. Minced ham may be used with the bread crumbs, if desired.

Eggs Baked in Tomato Cups.

Select medium-sized, firm, ripe tomatoes. Wash and wipe dry. Cut off a slice from the blossom end of each tomato and scoop out the inside. When as many are prepared as desired, dust the inside of the cup with seasoned bread crumbs. Break into each cup an egg, replace the slice cut from the tomato, set in a dripping pan, and bake twenty minutes in a slow oven. Serve hot.

Baked Eggs in Potato Nests.

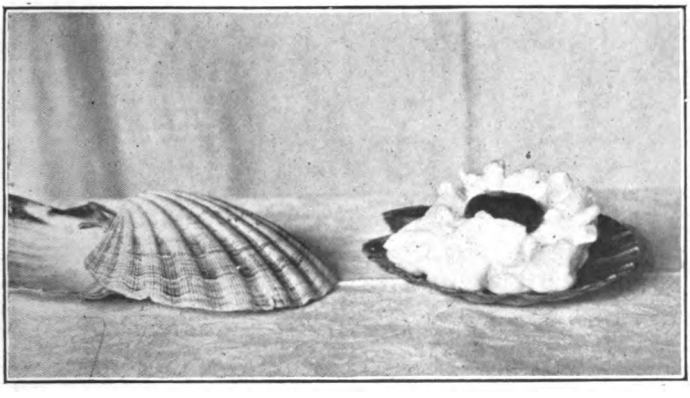
Line a baking dish, or escollop shells, with cold mashed potato put through a ricer. The potato should be at least one inch in thickness. With a fork or spoon make a nest for the egg in the potato. Carefully drop the egg into this, cover with seasoned bread crumbs, and bake in a moderate oven seven minutes if the eggs are desired soft. Serve in the dish in which they are baked.

Shirred Eggs.

Beat the egg whites till very light, put them in mounds on the platter on which they are to be served. Make with a spoon a hollow in the top of each mound, and in this put a whole egg yolk. Bake in a slow oven until the whites are a delicate brown, season with salt and pepper and bits of butter. Cut together before eating.

Creamed Egg Yolks.

When making angel cake, drop each yolk, as the eggs are broken, into boiling hot water, and set where they will cook gently until done. Make a white sauce of one and



Shirred Egg-Shell for Baking.

one-half tablespoonfuls of flour, one tablespoonful of butter, and one cup of milk. Season with salt and pepper, add one teaspoonful of chopped parsley (very fine), and pour over the well-cooked yolks. Serve with plain boiled or baked potatoes.

This may be varied by using half as many mushrooms as egg yolks.

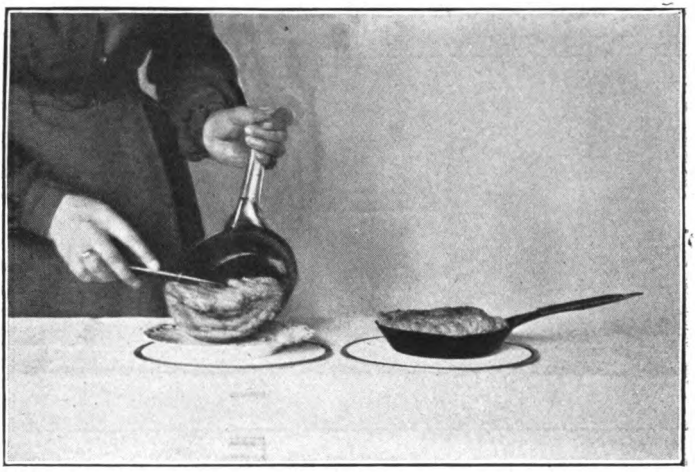
Light Omelet.

Beat the yolks of two eggs until very light. Then beat the whites, to which two tablespoonfuls of water, milk, or

cream have been added, fold together, put in the greased omelet pan, let stand until set on the bottom, then put into the oven, and let remain until firm and lightly cooked to the center, which can be ascertained by trying with a knife. Cook in a very slow oven. This omelet is often used without a sauce.

Sauce for Light Omelet.

Equal parts of white of egg and whipped cream, sweetened and flavored. More cream than egg may be used.



Turning Out an Omelet.

Nice for luncheon. A spoon is best for mixing white and cream. Strawberry juice may be used instead of cream.

Plain Omelet.

Two eggs, two tablespoonfuls of water (hot). Beat until the eggs can be lifted without running off the spoon. Heat one-half tablespoonful of clarified butter or bacon fat in an omelet pan, but be careful not to burn it. If any dressing is used, put in just before folding, except parsley, which put on when beginning to lift. Grated

cheese may be used same as parsley, or it may be put on when turned. Manipulate same as cornstarch omelet.

Fruit Omelet.

To the yolk of one large egg, beaten until very light, add one tablespoonful of fruit juice. If orange is used put in one-fourth of a teaspoonful of grated orange peel. If peach is used, add one-fourth of a grated peach pit, and a very little cream of tartar in the whites before beating. If the fruit is unsweetened, add one teaspoonful of sugar, beat well together. Beat the white until very stiff, and fold in the beaten yolk. Cook very slowly in a well-greased omelet pan.

Caramel Omelet—For Home Work.

Two eggs, whites and yolks beaten separately until very light. Add to the beaten yolks two tablespoonfuls of caramel, and beat together until well mixed; also two teaspoonfuls of sugar, one-half teaspoonful of vanilla, and one teaspoonful of lemon. Fold this and the beaten whites together and cook slowly in the oven in a greased pan until done. Fold same as a light omelet.

Caramel Omelet—For Class Work.

One egg, one tablespoonful of caramel, one-fourth teaspoonful of vanilla, one-half teaspoonful of lemon juice, one teaspoonful of sugar. Put together and cook as above.

Caramel: One cup of sugar, one-fourth cup of water. Boil until amber colored, then add one cup of water, and cook until a thick syrup is made.

Tomato Omelet.

Make a plain omelet, and when ready to fold pour over it one-half cup of stewed tomato, thickened by cooking in it one teaspoonful of butter and two teaspoonfuls of flour to one-half cup of the tomato. Season with salt and pepper. Serve hot on a warm plate.

Ham Omelet.

Two eggs slightly beaten, two tablespoonfuls of water; put together same as plain omelet. After cooking, cover the top with chopped ham, fold, and serve.

Cheese Omelet.

One cup milk, four level tablespoonfuls of cornstarch. Cook together. Pour this, when cool, over the well-beaten yolks of four eggs. Stir into this four level teaspoonfuls of bread crumbs, and four level teaspoonfuls of cheese. Fold in the four whites, which have been beaten stiff. Bake in a moderate oven fifteen minutes.

Cornstarch Omelet.

Cook together two level teaspoonfuls of cornstarch and one-half cup of milk. Cook until it ceases to taste raw, then season with salt and pepper. Break two eggs, and when the sauce is cooled sufficiently to not cook the eggs, stir the sauce and eggs together, but do not beat, except just enough to mix well. Rub the omelet pan well with dry salt to make smooth, then wipe the salt all out, and grease well. Pour the egg mixture into it, and set on range, and as it cooks lift from the bottom with a fork to let raw egg run down and keep top smooth. When cooked sufficiently, turn the side next the handle toward the opposite side, making a turnover of the omelet. See that it is loose on the bottom and sides. Take the omelet pan in the right hand and the plate in the left, and turn omelet on the plate. When the egg mixture is poured into the pan it should be not less than one-half inch thick. If flour is used instead of cornstarch take twice as much.

Laggard's Omelet—For Home Work.

Mix four level teaspoonfuls of cornstarch in one-half pint of sweet milk. Cook, stirring constantly, until the milk thickens. Let cool until it will not cook the egg, then mix the cooked milk and starch with the yolks of three large eggs, well beaten. Beat the whites until perfectly light,

and fold with the other. Cook in the same way as a light omelet.

Laggard's Omelet—For Class Work.

Two teaspoonfuls of cornstarch, one-half cup milk, one large egg, white and yolk beaten separately. Put together, and cook as above.

To grease the omelet pan, put plenty of fat in the center of the pan to grease bottom and sides well, and cause it to cover the surface needing it by tipping the pan.

References: U. S. Dept. Agr., Office of Exp. Stations, Farmers' Bulletin No. 128, pp. 24-26; Chemistry of Cookery—Williams—pp. 22-24; Minn. Bulletin No. 54, p. 77.

CHAPTER XIX.

CHEESE.

Cheese is an article of food which is manufactured from milk. Cow's milk is most extensively used, but the milk of ewes and goats is used in the manufacture of some of the cheese of commerce. Different kinds of cheese vary greatly in appearance, flavor, texture, and degree of hardness.

Cottage Cheese.

Cottage cheese is the result of a natural fermentation, and was probably the first variety of cheese made from milk. The milk for cottage cheese should not be allowed to become too sour, but should be used when it first becomes thick, and while it is still pleasantly acid. Heat it to 100° F., or set it in a kettle of boiling water, stirring all the time to prevent some portions becoming too hot. When it is ready, pour into a strainer made by folding a yard of thin muslin diagonally, and sewing the sides together, and hang up to drain. When the whey has drained out, season the cheese with salt, and add white pepper, if liked. Stir in enough sweet cream to moisten, or, in the absence of that, use sour cream or butter enough to flavor nicely. Serve cold. When the milk is made too hot or heated too long the curd is hard and tough, instead of soft and creamy, as it should be. Cottage cheese may be made by putting the sour milk into a vessel sufficiently large to admit of enough boiling water being poured onto the milk to coagulate it. Proceed as before.

Rennet is used to coagulate the casein in order to separate it from the whey. Fresh-made cheese is not palatable, and has little market value.

Cheese is a valuable article of food to combine with other foods, both on account of its giving greater palata-

bility and greater food value. It can well be combined with milk or with eggs, as in macaroni with cheese, cheese souffle, cheese toast, welsh rarebit, etc.

French Cheese.

France produces many varieties of cheese. Among the most famous are the Roquefort, Gruyere, Port du Salut, Brie, Camembert, and Neufchatel. The Roquefort is a rich, creamy cheese, made from the milk of ewes. The veined appearance of this cheese is due to the mold inserted by the peasantry who manufacture the cheese. It is stated that in no other place are the conditions so favorable to the growth of bacteria which give to this cheese its characteristic flavor. The Gruyere is a thick, firm cheese used in cooking. Port du Salut is a soft, creamy cheese, delicately flavored, made at Bordeaux. It is of no interest to people in general, as it is not used until ripened almost to decay. Neufchatel is a rich, creamy, white cheese, somewhat resembling cottage cheese. It is used as a dessert cheese. Camembert is a small hand-made cheese, which is not considered ready for use until first covered with a white mold, then with a green mold outside of that. The Brie is a large, soft cheese, resembling Camembert.

Holland Cheese.

The Gouda and Edam are Holland cheeses. The Edam is a rich cheese, though rather hard. It is round in shape, and colored red on the outside.

English Cheese.

Of the English cheeses, the Stilton and Double Gloucester may be taken as representatives of those in which much cream is used in the manufacture. Gloucester is a cheese mild in flavor, and is a fine cheese for cooked cheese dishes. The Stilton belongs to the same class of cheese, but is so well cured that it has a very strong flavor. The Cheddar is a famous English cheese. It is pale in color, a little less rich than the Double Gloucester, and has a deli-

cious flavor. Parmesan is less rich in fat than either of the others. It is a large, very hard cheese, which must be grated for use, but gives a fine flavor to macaroni and some other cooked dishes. The Parmesan is colored and artificially flavored with saffron.

American Cheese.

The American cheeses are of most interest to Americans. The bulk of the cheese made in America is manufactured by some form of the cheddar or sour-curd process, as distinguished from the sweet-curd process under which most of the above-named cheese is made. In this process the milk is warmed, rennet, an extract from calf's stomach, is added to coagulate the casein, and the curd is then cut into small cubical pieces with a many-bladed knife, and kept warm until it shrinks to expel most of the moisture, called "whey." The whey is then drawn off from the vat. It carries away most of the milk, sugar, and ash, and some of the fat, though the fat, being in small solid particles, and not in solution, as in case of the sugar and ash, is mostly held in the meshes of the coagulated casein. The curd is further heated and manipulated to make it firm, and it is then placed under pressure for a day or so, and more of the whey is pressed out. In the press, the curd is molded into cylindrical shapes, a foot or more in diameter, and six inches or less in thickness; or, in Young Americas, about six inches in diameter, and six to eight inches long. The cheese is then cured for several weeks in a curing room at an ordinary summer temperature. This process makes a cheese the most universally relished, at least by Americans and Englishmen. When made from whole milk, these cheeses are known as "Full Cream Cheddars," "Flats," and "Young Americas." When butter making is combined with the manufacture of cheese, and part of the butter fat is removed before the milk is made into cheese, the cheese manufactured is called "skim." A national law requiring manufacturers to tell the truth about adulterations

or modified products would be a great benefit alike to producers and consumers. Cheddar cheese is often used in cooking, and experiments showing how its use could be extended in making many appetizing and nourishing dishes might profitably be made.

CHEESE COOKERY.

Why is cheese not more extensively used for food in this country? There are two chief reasons. One is that people do not appreciate its value as a food material. If they realized that twenty-eight per cent. of cheese is protein, and thirty-five per cent. is fat, they would question the advisability of looking elsewhere for a cheaper muscle-forming and heat-producing food. A pound of cheese and a pound and a half of the best sirloin steak represent about the same amount of food value. The cheese has a little more nutriment in it. The other reason for using so little cheese may be found in the prevalent belief that cheese is indigestible. Experiments prove that people are mistaken in this. Cheese is slow of digestion, but very nearly all is digested. According to Konig, cheese is beneficial in the diet not only on account of the amount of digestible nutrients it contains, but because it aids in the digestion of some other foods.

As to the digestibility of raw cheese there seems to be still a difference of opinion. The Scotch and Swiss people are known to experience no difficulty in digesting it. Probably Americans would have less trouble if they knew that it contains more protein than almost any other food, and would take small amounts of it in the place of meat, instead of in addition to meat or eggs. It is often eaten at the end of a meal, when the stomach is already overloaded, and must rid itself of the great amount of protein which has been forced into it. Cheese should be eaten often, rather than in large quantities at one time.

All protein foods, if eaten cooked, give best results when subjected for a long time to a gentle heat while

cooking. Experience hitherto leads to the belief that this statement is true. In the case of egg cookery, a high heat hardens the albumen, and evaporates much of the liquid, leaving a shrunken, leathery mass. In cooking meat (boiling, for instance), the albumen is hardened, the connective tissue softened and dissolved, so that there are simply long, practically tasteless fibres, instead of juicy, palatable, tender lean meat.

When milk is heated to the boiling point, the albumen of the milk forms a tough scum over the top, and the milk has a poorer flavor than when kept at a lower heat.

Vegetable casein, such as is found in beans, peas and lentils, is subject to the same general rule. In order to be most palatable, and furnish the greatest amount of nutrition to the body, such foods must be cooked slowly, and for a long time.

Cheese is a highly concentrated protein food, manufactured from milk. Raw cheese is very generally slow in digestion, often causing serious disturbance and distress. When cheese is cooked with eggs or milk, and the general rule for cooking protein foods is followed, it is found agreeable in flavor, and much more easily assimilated. Cheese should not be exposed directly to the heat, as it is when toasted on crackers, etc., as this renders it hard and leathery. When mixed with eggs or milk before cooking, it is soft and creamy, and a portion of it apparently dissolved. In this case, the heat is a medium one and cannot rise so high as it otherwise would. Success in cheese cookery depends somewhat on the kind of cheese used. A skim-milk cheese is tough when raw, and very difficult to use successfully in cooked dishes. Such cheese contains much nutritive material, but the nutrients are not very valuable unless they can be put into digestible form. When one is compelled to use a stringy cheese a little baking soda thrown into the dish just as the cheese begins to melt will obviate the difficulty somewhat, but the product is never quite so nice as with a full-cream

cheese. A little baking soda (an amount equal to half the size of a pea) added to a cup of grated cheese, or to the ingredients of any cooked cheese dish, is believed by some to divide the cheese into finer particles, and thus render it easier of digestion. A filled cheese is never satisfactory for cooked dishes, and is less valuable as a food than a properly made cheese. Brick cheese, though a whole milk cheese, as found in some markets, is very unsatisfactory for cooking. This may not be true of all brick cheese. Some persons prefer to use imported cheese, rather than risk a mistake by using American cheese. The Double Gloucester, a cheese mild in flavor and rich in fat, is excellent in cooked dishes. Parmesan is a skim-milk cheese of Italian manufacture, and is, contrary to the general rule, highly prized in some cooked dishes. The absence of stringiness is probably due to a difference in ripening.

Grated cheese beaten into eggs, as in making omelets, makes a palatable and wholesome dish. The cheese, surrounded by the egg and slowly cooked, is soft and palatable. Of a dish similar to the cheese omelet, Mattieu Williams says: "I have made many a hearty dinner on one of these, plus a lump of black bread," etc. His meal consisted of nothing in addition to the omelet and bread except a beverage, and he adds: "I have tested the sustaining power of such a meal by doing some very stiff mountain climbing and long fasting after it. It is rather too good—over nutritious—for a man doing sedentary work." He further states that the cost of such a meal was about six cents.

At ordinary prices, cheese and eggs will give us muscle-forming and fat-producing food in a very cheap form in this country also.

One can easily test the difference in digestibility, or ease with which the food is assimilated, by eating a goodly amount of raw cheese for supper one evening, and taking

a dish of cooked cheese another time. Macaroni with cheese is a highly nutritious and very generally liked cooked cheese dish.

When milk, eggs, and cheese are used together, the dish containing the mixture should be set in a pan of water in the oven, and cooked the same as a custard. A similar dish may be made by mixing grated cheese and bread crumbs in equal parts in a dish, and pouring the custard over them, and baking in the same way. Toasted bread or toasted crackers may be eaten with cooked cheese dishes.

Cheese Timbales.

Break three eggs into a bowl, and beat as for custard. Put into these a cup of sweet milk and salt to taste (the exact amount of salt cannot be given as cheese varies much in saltiness). Stir in one-fourth of a cupful of grated cheese. Into this mixture pour three-fourths of a cup of milk, and mix well. Pour into greased cups, or timbale molds, and set the cups in a pan of water, and bake until firm in the center. Too long baking will make them watery, the same as custard.

Cheese Timbales—Class Rule.

One-fourth cup of sweet milk, one small egg, one-fourth teaspoonful of salt, two level tablespoonfuls of cheese (grated). Make as above, and bake in crumbed timbale molds until firm, but not watery.

Potato Puffs with Cheese.

One cup of mashed potatoes, one-fourth cup of sweet milk, one teaspoonful of butter. Beat together until thoroughly mixed. Break into this one egg, add one-half a level teaspoonful of salt, and a dash of pepper. Beat until light, then beat in three tablespoonfuls of grated cheese. Bake in muffin tins in a slow oven ten or fifteen minutes.

Cheese Straws.

Take the scraps of pastry left from making pies, roll on

a cold board with a cold rolling pin until thin, then sprinkle well with grated cheese, and lightly with salt. Roll up by folding over and over, roll thin again, cut in small strips, lay in the pan. Sprinkle lightly with salt and bountifully with cheese, and bake until brown and crisp.

Cheese Strata.

Butter a baking dish, and in the bottom place thin slices of bread, just enough to cover the bottom. Cover the bread with a white sauce, then a layer of grated cheese one-quarter of an inch thick, then another layer of bread, more white sauce, and more cheese. Continue in this way until the desired amount is in the dish, having cheese on top. Cover the top with seasoned bread crumbs and bake in a slow oven fifteen or twenty minutes. Serve in dish in which it is baked.

Cheese Fondu.

One egg yolk, beaten light. Add to this one-fourth cup of white sauce, beating constantly, two tablespoonfuls of fine bread crumbs, one-fourth cup of cheese, grated or cut fine. Fold in the beaten egg white. Pour into a buttered omelet pan. Bake in a slow oven ten or fifteen minutes. Dust with salt and pepper, and serve on a warm plate while hot.

Cheese Pudding.

One pint milk, two eggs, one pint of bread crumbs, one and one-half cups of grated cheese, one-half tablespoonful of salt, a little soda. Put the milk into a buttered baking dish, add the beaten eggs, the crumbs, the cheese, grated, salt, and soda, which have been mixed. Bake in a moderate oven until brown on top.

Welsh Rarebit.

One cup of cheese, grated, one-fourth cup of sweet cream, yolk of one egg, well beaten, one-half tablespoonful of butter, one-fourth teaspoonful of salt, one-fourth teaspoonful of mustard and less of pepper. Put the cheese

into a double boiler with one-half tablespoonful of butter. Put the butter in first. When the cheese is melted, stir in the egg yolk and the cream, which have been mixed together and seasoned with the mustard, salt and pepper. Stir until well mixed, but do not allow to curdle.

Cheese Souffle—Home Rule.

Two tablespoonfuls of butter, one and one-half tablespoonfuls of flour, one-half cup of milk, one cup of grated cheese, three eggs, one-half teaspoonful of salt, cayenne pepper, a dash. Make the white sauce, and pour over the beaten egg yolks. Stir the cheese into the white sauce, while hot. When cold, add whites, beaten stiff. Bake twenty to twenty-five minutes in a slow oven. Serve at once.

Cheese Souffle—Class Rule.

Two level teaspoonfuls of butter, three level teaspoonfuls of flour, one-quarter cup of milk, salt, pepper, and mustard to taste, one egg, beaten separately, two tablespoonfuls of cheese. Make the sauce, and pour boiling hot over the beaten yolk, stir in the seasoning, then the cheese. When cool, pour over the beaten white, and carefully fold together, and cook in a very moderate oven, same as a light omelet.

Cheese Toast.

Put one-half cup of grated cheese in a saucepan with one cup of whole milk and one teaspoonful of butter. Put over the fire, and when the cheese begins to melt, pour over it one well-beaten egg. Put again over the fire and cook until it thickens like a steamed custard. Stir constantly while heating. Season with one-fourth of a teaspoonful of mustard, one-half teaspoonful of salt, and a dash of pepper, and turn over nicely-toasted bread. Serve hot. May cook over hot water, or set the saucepan on an asbestos mat and cook slowly, stirring constantly.

Macaroni or Spaghetti with Cheese.

Break one-half of a pound package of either paste into two quarts of boiling salted water, and boil for thirty minutes. Drain well, and blanch in cold water. Melt two tablespoonfuls of butter, add the paste, one tablespoonful of salt, a little paprica, one cup milk, and three-fourths cup of grated cheese. Mix well, place in baking dish, cover with grated cheese, put buttered bread crumbs over the top, and bake in cool oven half an hour, or longer, if wished quite brown.

Rice with Cheese.

Use cold boiled rice. Butter a baking dish, and in the bottom put a one-inch layer of rice. Cover well with white sauce, and over this put a layer of grated cheese. Add more rice, more white sauce, and more cheese, until the dish is as full as desired, having a layer of cheese on the top. Over this sprinkle seasoned bread crumbs, and bake fifteen or twenty minutes in a moderate oven. Serve hot from the dish in which it is baked. Rice with cheese may be baked and served in individual escalop shells.

Toasted Cheese Wafers or Crackers.

Buy wafers of any shape desired, or crackers. Sprinkle grated cheese thickly over the top of the wafers or crackers, lay them in dripping pans, and place in an oven hot enough to brown a cracker in four or five minutes. Watch them closely, and remove from the oven when just a delicate brown. Serve them while warm. They should be crisp. Serve cheese wafers or cheese crackers with the salad course.

Cheese Balls No. 1.

One hard-boiled egg, cut in half. Take out the yolk, rub fine, and mix with it two level tablespoonfuls of find bread crumbs, and two teaspoonfuls of white sauce. Season with salt and pepper, and form into balls. Make one-half cup of white sauce; when done, add two

tablespoonfuls of cheese, hold over a slow fire, and stir constantly until melted, then put into this the balls, and heat. When hot, put the balls into the egg white cups, and pour over them the sauce. Prepare in same way the number of eggs desired.

Cheese Balls No. 2.

Use any cold cooked rice,—that cooked in milk preferred. Use one cup of rice and one-third cup of grated cheese. Mix together, stir into it the well-beaten yolk of one egg, season with salt to taste, then fold in the egg white, beaten stiff. Form into balls, and bake in a slow oven ten minutes. Serve hot. Cheese balls are nice as a luncheon dish.

Cheese Mushes.

Cheese may be used in all mushes made of wheat. Stir the grated cheese into the mush after it is cooked, but just before removing from the fire. Cheese requires little cooking.

References: Chemistry of Cookery—Williams—pp. 135, 138; also pp. 141-144; Minn. Bulletin No. 54, p. 77.

CHAPTER XX.

BEVERAGES—COFFEE.

The United States imports its coffee principally from Central America, Mexico and Columbia. The following from Bulletin No. 13, United States Department of Agriculture, Division of Chemistry, gives a good idea of the

Coffee Plant, Flower and Bean Pod.

appearance of different coffees. Of the following statements, those in quotation marks are from the observations of Lascelles:

"'West India coffee is for the most part even-sized, pale and yellowish, firm and heavy, with firm aroma, losing little in weight by the roasting process.

"'Brazil coffee is larger, less solid, greenish or white, usually styled by the brokers "low" or "low middling."

"'Java coffee is smaller, slightly elongated, pale in color, deficient in aroma and essential oil, and light.'

"'Ceylon produces coffee of all descriptions, but ordinary plantation coffees are even colored, slightly canoe shaped, strong in aroma and flavor, of considerable gravity, and admit better of adulteration than most other kinds.'

"Mocha is usually considered the best coffee of commerce. It is stated that East India coffees are sometimes shipped to Arabia, and exported from this latter country as genuine Mocha coffee. The seeds of the Mocha are small and dark yellow.

"Java coffee, when new, is a pale yellow, and is then cheaper than when old and brown. This color is partly a result of the method of curing, in addition to the effects of age. The high price of Java has led to the coloring of cheaper grades with mineral pigments, or otherwise, in imitation of the favorite coffee. It may be well to state that this practice cannot be general, since no foreign coloring matters are found in the Javas examined in the course of investigation treated of in this work, though it is probable that coffees colored by exposure to a high, moist heat may have escaped detection."

The alkaloids of tea and coffee are about the same, both chemically and physiologically. That in coffee is known as "caffeine," and is smaller in amount than "theine," the alkaloid of tea.

Ground coffee is sometimes adulterated by the use of cereals, beans, peas, and acorns. Chicory is probably the most-used adulterant. One test for chicory is to put a portion of ground coffee into a glass of cold water. A quick sinking, with a brown coloring of the water, indicates the presence of chicory. This is not an infallible test, for it is sometimes so prepared as to float. Cereals will sink, but with slight, if any, discoloration.

There are many substitutes for coffee, as preparations of chicory, cereals, caramel, and legumes.

Coloring is resorted to in whole coffee, as in tea, to give an inferior or damaged coffee the appearance of something better.

Coffee which is two-thirds Java and one-third Mocha is desirable. Two heaping tablespoonfuls to each pint of water makes a good coffee. The above coffee, when genuine, is expensive, and there are other mixtures making mild coffees which are cheaper and very desirable.

Old Time Coffee Pot and Hot-water Pot.

As to whether coffee made with a cloth strainer allowing the beverage to trickle is better than coffee made with boiling water and cleared with egg depends upon individual taste. For settling coffee, nothing is better than egg white. The yolk should not be used, as it adds little to the coffee, and is good for salad dressing.

Coffee Cleared with Egg—No. 1.

Use the same quantity of coffee as given above, but not ground quite so fine. Put the coffee, a little egg white, or

egg shell (perfectly clean), into a bowl, moisten with cold water, and mix well. Put into coffee pot, rinse the bowl, and use in all half the amount of boiling water necessary for the coffee. Let stand on stove until it boils, then let simmer about five minutes, or steep like tea, add the remainder of the boiling water, pour out a cup of the coffee, pour back into the pot, add one tablespoonful of cold water, and serve.

Coffee Cleared with Egg—No. 2.

Beat an egg and mix with one cup of water in a bowl. With the egg and water mix five tablespoonfuls of ground coffee. Put into coffee pot. Pour a second cup of cold water into the bowl, rinse, and pour into coffee pot. Set on the range, and when it reaches the boiling point add the remaining pint of cold water. Let it reach the boiling point again, and pour in four or five tablespoonfuls of cold water to settle. Let set five minutes, and serve.

Cereal Coffees.

Make according to directions on the packages.

Hygienic Coffee.

Bran four quarts. Molasses one pint (best New Orleans). Rub together with the hands, and brown nicely in the oven. To make coffee, use twice as much of this as of genuine coffee. Make in same manner as genuine coffee.

Drip Coffee.

When a coffee pot with a cloth bag or other strainer is used, it will be necessary to put into the bag two tablespoonfuls of ground coffee for each pint of water. Pour the water around the outer edge of the coffee, close to the sides of the pot first, and gradually approach the center, so that the dry coffee will not be forced against the sides of the strainer. Coffee should be ground quite fine, but not pulverized. When the water is on, cover, allow to trickle through, then pour on another third, and when this

has passed through, put on the remainder. Pouring on a little at a time removes the strength better, and if it is drawn off and poured over, it loses flavor when passing through the air.

COCOA.*

There are several small trees which belong to the genus Theobroma. These yield the seeds from which cocoa is made. The tree known as "Theobroma Cocoa" yields by far the greatest quantity and the most valuable of that found in commerce. The cocoa tree does not grow high. It seldom exceeds sixteen to eighteen feet, but grows

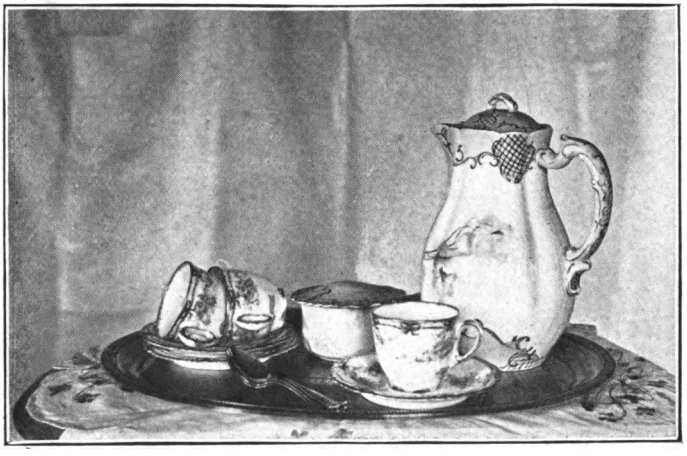
Cocoa Pods and Leaves.

higher in the native forests than it does under cultivation. This tree, like the fig, has flowers and fruit in different stages of growth at the same time. The ripe bean-bearing pod is from seven to ten inches in diameter. The thick purplish yellow rind is hard and leathery. The surface is marked with ten very distinct longitudinal elevations. Each pod contains from twenty to forty seeds, or sometimes more. These are imbedded in the delicately pink acid pulp which fills the interior of the pod, and are arranged in five longitudinal rows.

*Encyclopedia Brittanica.

The cocoa tree begins to bear the third or fourth year, but does not attain its full vigor until the eighth year. Under favorable circumstances, it should continue prolific for thirty or forty years.

The cocoa gatherers cut off the ripe pods only by the use of curved knives on the ends of long poles. The fruit is left lying in heaps on the ground for twenty-four hours. The pods are then opened, and the seeds removed and carried in baskets to the sweating sheds. The seeds are freed from the pulp, and the acid juice drained off. Then



Cocoa Pot and Cups.

they are placed in sweating boxes, where they are allowed to remain for some time, the air about them being kept at a certain temperature. Sometimes they are buried in trenches. The process of sweating is then called "claying."

When the fermenting has proceeded far enough, the seeds are dried in the sun. The process of curing gives beans of the best quality a warm, reddish tint. According to Encyclopedia Brittanica, Venezuela produces the

finest beans of any country. This product is known in commerce as "Caracas Cocoa." The best quality of cocoa beans resemble plump almonds in size and shape.

The husks are a brick red color, and the seed is easily broken, and falls into many irregular pieces when crushed. The kernels are astringent in taste, and have a mild, agreeable flavor. Different beans vary somewhat both in chemical composition and character. The following is given by Payen as the average composition:

Fat (cocoa butter) 52 parts in 100.
Nitrogenous compounds, 20 parts in 100.
Starch, 10 parts in 100.
Cellulose, 2 parts in 100.
Theobromine, 2 parts in 100.
Saline substances, 4 parts in 100.
Water, 10 parts in 100.
Cocoa red, traces.
Essential oil, traces.

Theobromine is the alkaloid of cocoa, and has the same physiological value as the theine of tea and coffee. The fat which is pressed from the bean is white and solid at ordinary temperatures. It has a pleasant taste and odor, and is remarkably free from any tendency to become rancid.

Cocoa nibs are a simple and usually a pure form of manufactured cocoa. They are simply the shelled roasted bean, broken up. When the nibs are ground up into a coarse uniform paste, they form what is known as "cocoa flakes." This can be much more easily disintegrated by cooking than the nibs can. In making extract of cocoa, a portion of the fat is removed from the bean, and it is then reduced to an extremely fine powder. This forms a drink more agreeable to some stomachs than the nibs or flakes because the fat is not present. The preparations which are sold in the powdered forms offer a fine opportunity for adulteration. According to Encyclopedia Brittanica, most of these preparations, whether sold as

cocoa or chocolate, are mixtures of various substances with ground nibs, the object of the mixture being to mask the presence of the cocoa fat, and render the whole readily miscible with boiling water.

The ordinary distinction between soluble cocoa and chocolate is that the cocoa is usually sold in the form of a powder, the chocolate being made up in cakes, which require to be scraped down, boiled, and frothed before being ready for drinking.

The finely-ground cocoa, while still a warm and pasty mass, can be easily adulterated by mixing thoroughly with it arrow root, sugar, etc. Cocoa shells are also sometimes used to adulterate cocoa.

Bulletin No. 13, United States Department of Agriculture, Division of Chemistry, says: "There is probably no more abused or misleading term in the English language than the term 'soluble cocoa.' No cocoa in the market contains a very considerable percentage of matter soluble in water unless the material so dissolved is foreign soluble material that has been added during the process of preparation. The term seems to be used to denote a preparation that allows none of the insoluble matter to deposit from the beverage prepared from it. This purpose may be accomplished in two ways,—the material may be so finely divided that a very long time will be required for its deposition, or foreign substances (as starch or sugar) may be added to render the liquid of so high a specific gravity, or so pasty, that the insoluble part will not deposit."

The best sweet chocolates are combinations of chocolate and sugar alone, flavored with some aromatic substance, usually vanilla. Into the cheaper grades some starchy substance often enters. The nibs for chocolate are brought to a pasty state in a heated mill, and the sugar, with whatever else is added, is thus thoroughly incorporated in the milling process. The paste is further mixed by passing several times between horizontal rollers. It is

at last put into a mold, and when cooled is ready for wrapping.

To Make Cocoa.

One and one-half level teaspoonfuls of cocoa for each cup. Place the cocoa in a granite cup, and stir in cold water enough to make a thin batter. Place on the fire, and stir until it thickens, then stir into it enough boiling water and milk (one-half milk and one-half water) to make a cup.

Cocoa Made from Nibs.

Put one cupful of cocoa shells and one generous tablespoonful of cocoa nibs into two quarts of boiling water, and let simmer for four hours. Strain and serve hot with sugar and cream.

TEAS.

Teas are prepared from the leaves of an evergreen shrub which is grown very extensively in China and Japan. Teas are divided into two classes,—black teas and green teas. They take their names from the color of the leaves, and the color depends upon the manner in which the leaves are cured.

"The method of preparing tea differs in different countries in which this commodity is grown. In India, the manufacturing processes are very much simplified, and the greatest portion, if not all of the work is accomplished by machinery; thus the leaves only come in contact with the hands of the laborers in picking."

"The method of manufacture of black teas in Japan is essentially as follows: The leaves are withered by exposure to the sun, fire being used only in cloudy or rainy weather. An hour's sunning is usually sufficient. After withering, the leaves are rolled and twisted. Black teas are usually rolled in an apparatus made especially for this purpose. The rolled leaves are now subjected to fermentation. This is a very important operation, since its influence on the quality of the tea is considerable. During

this operation the leaves lose their disagreeable raw odor, and acquire a fine flavor and the desired tint. One method of fermenting the leaves is to make them up into small balls, which are placed in shallow bamboo trays, covered with a white cloth, and set aside in a sunny place. A second method is to spread the leaves in a tray, press them together, cover, and place them in a sunny place, as above. The progress of fermentation is determined by the appearance of the leaves; the full time required being about one hour. After fermentation, the leaves are exposed to

Tea Pot and Hot Water Pot of a Century Ago.

the sun in a thin layer. During this sunning the green color of the leaves gradually changes to black.

"The next process is the 'firing.' The leaves are placed in a tray over a charcoal fire, and the temperature gradually increased as the moisture is driven off. The leaves are constantly turned, to insure uniform drying. The leaves are transferred to another tray, carefully mixed, and the drying repeated until they are dry. The final operation consists in passing the leaves through sieves of different meshes, and packing. The tea is divided into three classes, depending upon the size of the leaves, viz., Pekoe (the leaf bud), Souchong and Bohea.

"As already stated, these manipulations are very much

simplified in India. According to Col. Money, the operations practiced in the older tea countries have been reduced from twelve to five.

"Teas are adulterated in various ways. A process known as facing is frequently resorted to, and is a coloring of the leaves. Exhausted leaves are sometimes mixed with tea. Foreign leaves are sometimes added. Gunpowder and other fine teas are especially adapted to adulteration by the use of fragments of foreign leaves. It is believed that under the laws now in force the adulteration of teas is practiced very much less than formerly."*

Green teas are prepared by first steaming, then rolling, slowly drying, sorting by sieves, then facing. Japanese teas are prepared under better sanitary conditions than Chinese teas.

To Make Tea.

To make green tea, heat the teapot with boiling water. Pour the water out, put the tea in (one teaspoonful to each cup) and pour on enough fresh-boiled water to thoroughly saturate it. Set the pot back on the stove where it will keep hot, but not boil, and let the tea steep from five to ten minutes, then pour on the quantity of hot water needed, and serve; or pour water all on at once, and let steep.

To make black or Oolong tea, use two teaspoonfuls to each pint of water, and proceed same as in making green tea.

Ceylon or English breakfast teas are better steeped at table, as they deteriorate in flavor by standing. Only freshly-boiled water should be used in making tea, as the gases present in water give a pleasant odor, and boiling drives them off.

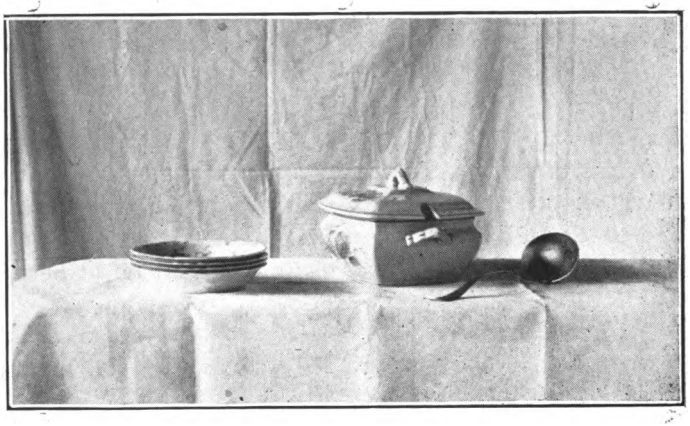
*U. S. Dept. of Agr., Division of Chemistry, Bul. 13, pt. 7.

References: Chambers' Enc. p. 114; Enc. Brit., "Tea," "Coffee;" Johnston's Enc., "Tea," "Coffee," and "Chocolate," pp. 50, 376, 377; Buckeye Cook Book, pp. 204-207; Parloa's Kitchen Companion, pp. 818, 819, 822-824; Art of Cookery—Ewing—pp. 77, 78; Art of Cooking for Invalids—Jack—pp. 151, 152.

CHAPTER XXI.

SOUPS AND SOUP MAKING.

If we will prepare tempting soups of the scraps of meat, bones, etc., we will aid in preventing the habit of over-eating, to which our progress in civilization has led us. Formerly very simple diet was found satisfactory, but now the four corners of the earth are ransacked to supply us



Soup Tureen, Ladle and Coups.

with the things which will most tempt our appetites. Soup may aid in overcoming the habit of rapid eating, if not of overeating, for, if taken at the beginning of the meal, it is very satisfying. Soup is ready to at once be absorbed by the vessels of the stomach, and therefore relieves the feeling of hunger, and hence one becomes inclined to eat more leisurely.

To be successful in soup making, the cook must know

the taste of a good soup, and make that the guide in strength, flavor, and seasoning. Use up all the scraps of meat, either cooked or raw, but cook them separately, that is, cook the raw meat a little before putting the cooked meat into the kettle. Meat broths cooked in this way should not be flavored, and should be seasoned with salt only. They are conveniently used in gravies and purees when there is not a sufficient quantity to form a soup for a meal, and, if flavored, they would be spoiled for this purpose.

A great many soups are made without the previous preparation of a distinct stock; but stock is the base of many soups, and its manner of compounding is essential to a perfect understanding of soup making.

Stock is the juices and the soluble parts of meat, bone, etc., held in the water in which they have been drawn out by proper cooking. This liquid has, when cold, a pleasant, meat-like flavor, and a jelly-like consistency, owing to the harmonious combination of the materials of which it is composed, and the gelatine which has been drawn from the cartilagenous portions. The lean portions alone will not form a jelly. It is for this reason that round of beef only is used in making bouillon to be served cold. The stock will have a better flavor if the bones and meat are in small pieces when put to cook, as the water will thus remove more of the soluble parts.

To Make Soup Stock.

Select a shin or shank of beef containing as much lean meat as bone, and, to get the best results, cut the meat into small pieces, and have the bone sawed in short lengths, and put to cook in cold water. This will allow the water to draw more flavor from both meat and bone. Use with this any trimmings or tough pieces of raw meat, provided it is beef. Put the meat into the kettle and pour in cold water to cover one inch deep. Add about half the amount

of salt it will probably need, let heat up gently, and when hot, simmer for several hours. After it has cooked for four hours, put into a spider, with some hot ham or bacon fat, a pint of onions, carrots, parsnips, and white turnips mixed in equal parts, and cook until brown. Put into the soup kettle, rinse the spider, and pour the contents into the kettle, and let simmer half an hour. Pour the contents of the kettle into a colander. When the stock has all drained out, set aside to cool. Leave the grease over the top unless wishing to use the soup right away, because the fat causes it to keep better. Remove the cold fat in a lump. If you have not time to let cool, pour a little cold water into the hot soup to aid in bringing the fat at once to the top, dip off what you can, and remove the rest with paper, placing white or unglazed paper, a piece at a time, on the surface of the liquid. The liquid should be of an amber color, and will be if the vegetables are browned enough. Always save the rinsings from the roasting pans for gravies.

Cook peppercorns with meat, allowing three peppercorns to a quart of water in making soup stock (if pepper is desired) as this gives the flavor of pepper without the cloudy appearance necessary with ground pepper. It is wise to place an asbestos mat under the soup kettle. It is much better to have soup stock cook slowly, and the asbestos mat aids in preventing too great heat, after the contents are all thoroughly heated through, in the kettle.

To Color Soup Stock.

There are several ways in which an amber color may be imparted to soup. The following method is perhaps most satisfactory from all standpoints: Place the soup meat in a hot spider, or iron kettle, containing a little fat, and stir about until it browns, but let no particle of it burn. When it is nicely browned, put it into the soup kettle, cover with cold water, as for soup making, rinse the vessel in which it was cooked, and add the water used to the kettle.

Another excellent way to color soup stock is to use the bits of roast and bones from steak left by the carver on the meat platter. Add the rinsing from roasting pans and meat spiders, when not needed for gravy, and little extra coloring will be necessary.

A third way to color the stock is by browning the vegetables to be used before putting them to cook for the soup, and add the water in which they were cooked to the stock.

A fourth method is to make a meat caramel by evaporating meat broth to a syrupy consistency, and then allow it to brown, but not burn. This may be kept for a short time if put into a sterilized glass jar, and sealed while hot.

Meat extract for coloring soup may be bought, but the flavor is not so fine as the home-made caramel. Both the boughten extract and that made at home must be kept closely sealed.

A fifth and less desirable method is to use a sugar caramel made in the same way as a meat caramel, except that a syrup made from sugar and water is used as a basis.

Reasons for Using Cold Water in Making Soup Stock.

When a piece of meat is immersed in boiling water, a coating of coagulated albumen is formed on the outside. This largely prevents the escape of the meat juices. Meat surrounded by cold water remains soft, and its juices are drawn out gradually as the water heats.

Reasons for Cooking Vegetables in Water, Rather than in the Soup.

Cooking vegetables in the soup usually gives the soup a flavor which is less delicate than when the vegetables are cooked in water. The soup stock is apt to be overcooked, if vegetables are added to it to be cooked.

What Meats should be Cooked Together in Soup Stock.

Chicken and veal may be used together, and either may be used with beef, but mutton, pork, and turkey should

each be cooked alone, and the broths used alone, except in mixed soups, where their flavors are toned down or disguised by the use of various vegetables and other flavorings. A very little ham or bacon is sometimes used in other meat stocks, but not enough so that the flavor is noticeable.

Vegetables Used for Flavoring Different Soup Stocks.

In making chicken broth, cook a stalk of celery, a blade of mace, or a bit of onion with each fowl. For veal, use the same materials, but less of them.

In making beef stock, use onions, carrots, turnips, and celery. Cabbage may be used, also, but it is apt to so assert itself as to obscure largely all other flavors.

In a mixed broth, many vegetables and herbs may be used, but all must be added in such quantities as to preserve harmony, and produce a pleasant flavor. None of the flavoring materials should be in a powdered form, as they impair the beauty of the liquids. Some of the herbs commonly used in soup are described in the article on condiments and spices. Those who wish highly-flavored soups can buy the herbs and spices already mixed, and add the amount desired half an hour before straining the stock.

Meat broths are usually just plain meat stock seasoned with salt and pepper. A bit of parsley may be added to lamb or mutton broth.

What to Serve in Soups.

Bouillon should be well colored, strong, clear, and served with nothing in it. Clear soup, or consomme, should be clear, amber colored, of medium strength, and flavored with herbs and vegetables. It may have something served in it, but all things which cloud it, or interfere with its clearness in any way, should be excluded.

Beef broth may have some cereal, as barley, served in it.

Many kinds of paste, as the long, slender strips of vermicelli, the rings of macaroni and the many fanciful forms of paste to be found on the market, as well as noodles, may also be used in a beef soup. Chicken broth may have rice, noodles, or some of the various forms of paste served in it. Mutton or lamb broth is best with parsley, rice or barley served in it. Veal broth admits of about the same things as chicken broth. Bean and tomato soup are especially nice with croutons.

All cereals, vegetables, and pastes are cooked in water before being added to the soups. Mixed vegetable soups admit all vegetables which taste well together. These vegetables are simply chopped, or are cut in fancy shapes, as desired.

Soup sticks, bread fingers, crisped crackers, or toast strips may be served with soup.

When it is necessary to scald soup in order to preserve it in warm weather, be sure that it boils. Merely heating without boiling does no good.

Croutons.

Cut slices of stale bread, buttered, into squares (small), and brown in the oven. Serve with pea soup, bean soup, or tomato soup. Croutons may be fried in deep fat, but baking in the oven is preferable.

Noodles for Soup.

Break an egg into a bowl, add one-fourth of a teaspoonful of salt, and stir in a generous half cup of flour. Knead well. Roll as thin as possible, let lie on the molding board until it can be rolled like jelly cake without the paste sticking together. When rolled, cut off in strips one-eighth of an inch wide, shake out. Put two quarts or plenty of water over the fire in a kettle or saucepan, and add one tablespoonful of salt to two quarts of water. When boiling, put in the noodles, and cook rapidly three-fourths of an hour. Serve in noodle broth, chicken or veal broth.

Thickening for Soup.

Most thickened soups have about the consistency of cream. Some authorities direct that purees be made thicker, but since they are in the category of soups, there seems no good reason for doing so.

When butter and flour are used for thickening, save out half the soup stock, if it is cold, put the butter and flour in a saucepan, and, when melted, pour the soup stock on them, stir until it boils, and then add to the rest of the ingredients. If it is hot, have it very strong, and use a cup of water with the thickening, or have it hot, of the right strength, and mix the butter and flour together perfectly, put on the end of a wooden spoon, put into the liquid, and stir until the mixture melts slowly from the spoon, and thickens the soup as desired. When cornstarch or arrowroot is used, mix smoothly with a little water in a saucepan, then pour on a little hot soup, pouring slowly and stirring rapidly to prevent lumping. When well mixed, add to the contents of the kettle, and stir until smooth and well cooked.

The amount of thickening given in the following formulae is simply enough to give body to the soup, and prevent the vegetables settling. Those desiring a thick puree or cream must use twice the given amount of thickening material. Split peas and cooked tomatoes may be used without straining, and simply form soups, but both are nicer when strained and made into purees. Most vegetables need straining to remove the woody portion, as the covering of beans and the woody, stringy portions of asparagus and celery.

CLASSES OF SOUPS.

There are many varieties of soup, but few distinct classes. A plain soup is a simple stock of either meat or vegetable origin. It may contain one kind of meat or vegetable, or more than one kind; but the distinguishing feature is the absence of elaboration. No attempt is made

at display. It is simply seasoned with salt and pepper. Beef soup is an example. A clear soup has a meat-stock basis, either simple or compound. Such a soup must be perfectly clear, colored a beautiful amber, and nicely flavored with vegetables. Herbs are added if desired. Example, chicken consomme. A vegetable soup may have a mixture of various vegetables cooked in water and seasoned, or meat broth may be added also. When a stock is made simply by cooking vegetables in water and straining it is called a vegetable stock. Example, tomato soup. A cream soup has milk as the distinguishing characteristic, and may be made from a meat stock, as cream of chicken, or from a vegetable stock, as cream of celery. Mixed soups form a sixth and last distinct class of soups. These are made by uniting two or more of the others, in proper proportion.

Emergency Beef Tea.

Cut round steak into small pieces, free from fat, put into a saucepan, granite or porcelain, cover with cold water about one inch, and add one-fourth teaspoonful of salt to each cup of water. Heat gradually to nearly the boiling point and let simmer twenty minutes, press with a spoon to free the juice, strain and serve.

Beef Tea.

Prepare the beef as for Emergency Beef Tea, put in a glass fruit jar, add one-half cup of cold water to each pound of meat, put the cover loosely on the jar and set in a kettle of cold water on a support. Heat gradually to the boiling point, and let simmer two or three hours, then strain, pressing out as much juice as possible, and serve.

Beef Essence.

Prepare the steak as for beef tea, and put in a jar without any water; put the jar in a kettle of cold water, and finish the same as beef tea.

Beef Juice.

Sear a piece of round steak on both sides, and heat it enough so that the juices may be extracted by squeezing with a lemon squeezer or a meat press. (Cut in small pieces before squeezing.) Put the juice into a warm cup, and if still too cool to serve, set the cup in water below 180° F. If the juice is heated above 180° F., the albumen will coagulate. If it is desirable to have the juice absolutely free from any possibility of a smoky taste, put the meat in a granite basin, and heat over water until each outer surface is white, then cut in small pieces, and squeeze.

Beef Broth with Tomato—Home Rule.

Two cups of beef broth, one generous half cup of strained tomato. Season with one-fourth teaspoonful of salt and a dash of pepper.

Beef Broth with Tomato—Class Rule.

One-half cup of broth, two tablespoonfuls of tomato. Salt and pepper to taste.

To Make Lamb or Mutton Broth.

Choose the neck, and be sure that it is perfectly cleansed. Remove the outer thin skin. To have the best results, have the meat cut into two-inch lengths. Put into the kettle, press down well, and cover to the depth of one inch with cold water. Cook slowly four or five hours. Strain through a colander, and allow the fat to remain over the top until the broth is needed. Remove all the fat before using. A little cold water poured into the hot soup will help make the fat rise to the top. Parsley, rice or barley may be appropriately served in lamb or mutton broth.

To Make Turkey Broth.

Put the bones, skins, and refuse bits of turkey in a saucepan with some trimmings of celery. Add a teaspoonful of salt, and sufficient water to cover the bones, simmer for three hours, strain, and remove the grease.

Tomatoes or rice are appropriate with turkey broth. Turkey broth is much less delicate than chicken, but is enjoyed by some.

Noodle Broth.

One pint of milk, two teaspoonfuls of flour, and two teaspoonfuls of butter put together as for a white sauce. Add one level teaspoonful of salt, a dash of pepper, and a drop of onion juice. To this add one-half cup of cooked noodles. Bring to the boiling point and serve.

CLEAR SOUP, OR CONSOMME.

To clear the soup, use the whites of the eggs only. To every two pints of stock allow one large egg white. The entire egg may be used, but the white only gives a better flavor and the yolk can be easily used in salad dressing. Wash the shell before breaking, and put it in also. Mix the egg in the cold stock, and beat well together. Place over the fire and stir constantly until it boils, then stop stirring, and let boil until a perfectly clear liquid appears below the scum, then strain through a cloth. If the soup does not boil long enough, it will be cloudy after straining.

The fat must be all removed from the top of any soup before serving. A clear soup is appropriately served without anything in it, or it may have anything which will harmonize with the broth, and not cloud the soup. Clear soup is often called "consomme." A consomme made of beef broth alone may have added to it pearl barley well cooked, drained, and rinsed. One of the numerous pastes, as vermicelli, or macaroni, cut into very short pieces or rings, Italian paste or letters, spaghetti, etc. A good rule is, add nothing which will cloud the soup.

Julienne Soup.

This is simply a clear soup to which vegetables cut in fancy shapes are added. The vegetables may be cut in long, slender, match-like pieces. Use well-cooked and

rinsed green peas on account of the color, but most vegetables should be either long, or some fancy shape.

Chicken Consomme.

This stock is made in the same way as directed for clear soup, except to each fowl use about one pound of lean beef, and simply put the breast in on top long enough to cook it, and take it out, letting the beef fill its place in making the stock. Cook with the chicken two small stalks of celery. This is specially nice with rice or noodles, or any of the before-mentioned pastes. There are many varieties of soup made from clear stock, and each

Bouillon Cup.

takes its name from the material served in it. When served without any additions, they are called "amber soup," "plain consomme," etc.

Mullagatawny Soup.

To a chicken broth made as above, but not cleared, add bits of chicken cut in small cubes, season, and just before serving add a teaspoonful of curry powder, or as much as is needed to season it very highly. May leave out the diced chicken, and use rice instead.

When flavoring other soups, never use powdered spices, as they form a sediment at the bottom of the plate, and spoil the appearance. Whole cloves and other spices

should be stuck into the vegetables while boiling. Whole pepper is superior to ground, but it requires several hours boiling.

Bouillon.

Make and clear the stock the same as for clear soup, but have the stock stronger and darker than for clear soup, and use lean meat without bone in making the stock. Serve bouillon in cups, and always plain. Bouillon is generally made of best round. When bouillon is to be served cold, this is necessary to prevent its jellying, but when served hot, it is just as well to use bone with the meat, the only necessity being to have it strong, dark, and clear, with a fine flavor.

MIXED SOUPS.

Soups made from two or more different broths wisely combined and flavored delicately with vegetables and other suitable materials are among our most palatable dishes, but, like other good things, they require extra skill in their preparation. In a mixture of veal and chicken broth, use such vegetables for flavoring as celery, onions, and parsley. For a mixture of beef, mutton, etc., use cloves, bay leaf, sweet marjoram, a little tomato or catsup. Sometimes butter and flour browned together harmonize with the other ingredients of the mixture. Never mix mutton and beef unless you use vegetables to disguise the mutton flavor. Do not use turkey or ham broth, except in vegetable soups, and then very little.

Stock for Aspic Jelly.

One pound of beef for the flavor, one knuckle of veal to furnish the gelatine, one-eighth pound of bacon, one-fourth of a small turnip, one-fourth of a parsnip, three cloves, six peppercorns, one-half a small onion, one-half carrot, one celery root, one parsley root, one blade of mace, three allspice berries, one teaspoonful of Worces-

tershire sauce, one teaspoonful of chopped lemon rind, one-half of a bay leaf, one teaspoonful of salt, water to cover the meat. Cook the bacon in the kettle, then brown the onions in the bacon fat. Add the beef in small pieces, and brown it also. Put the cold water over the meat, let reach the boiling point, then cook slowly four hours, put the vegetables in, and simmer another hour. Any meat and bones may be used in making stock for aspic jelly, but unless there are bones and gristle enough to form gelatine for it, gelatine must be put into it, but the bones give a better flavor than added gelatine.

Aspic jelly should be highly seasoned, be clear and sparkling, and of an amber color. It is used for garnishing fowl, game, etc. It is also used for molding boned birds and fowls, boned meats, etc. To mold meats in aspic jelly, wet the mold, pour in jelly half an inch deep, and let harden, then put the meat in place, and pour in the rest. If the bottom and sides are decorated with some design, put in a little jelly and let harden, so the article will not sink, but do not allow the jelly to become perfectly hard before more is carefully added.

Aspic jelly may be cooled in a ring mold, and have chicken salad served in it. It is used at fine dinners and luncheons.

Noodle Soup.

If the broths on hand are from roast chicken and veal, thicken with butter and flour, using one tablespoonful of each to a pint of liquid (proceeding as directed for white sauce on page 53), let boil up well, and add any bits of cold macaroni cut in short pieces, or make noodles as on page 260.

Vegetable Soups.

When vegetables are used in soup, they should be first cooked in water, and care should be taken to put those vegetables requiring most cooking into the kettle first. Use as little water as practicable, and limit the simmering

of each kind to the time actually necessary to cook it tender.

String beans require from one to two hours. Carrots in large pieces require from one to two hours. Green peas three-fourths of an hour to one hour. Onions about one hour. The soup has a better flavor if the vegetables are browned in a little butter before adding to the soup. Use in the soup the water in which the vegetables are cooked.

To each quart of soup use one-half cup of beans, one-half cup of carrots, one-half cup of peas, and one-fourth cup of onions, and the same of tomato may be used. May use a tablespoonful of white turnip, if liked.

Mix together the bits of broth of various kinds, cook the above vegetables in the same saucepan, adding the different vegetables according to the length of time required for cooking them. When done, add them to the soup, season, and serve. If liked highly flavored, mix the broths, and steep a bouquet of herbs, cloves, and peppercorns in it, using two cloves and four peppers to a quart. Cabbage may be used in vegetable soup, but it is so highly flavored that it asserts itself over the others too much for the best results.

Okra Soup—For Home Work.

One quart of chicken broth, one cup of okra canned or fresh (strained), one-fourth cup of lima beans, one-fourth cup of sweet corn, one-fourth cup of cooked and strained tomato. For thickening use two tablespoonfuls of flour and one of butter. Save out one cup of chicken broth, and use it in making the thickening as directed for thickening soups.

Okra Soup—For Class Work.

One cup of chicken broth, one-fourth cup of canned or fresh okra, one tablespoonful of lima beans, one tablespoonful of sweet corn, one tablespoonful of tomatoes.

Thicken with one teaspoonful each of flour and butter. Season and serve.

Save-all Soup.

In a save-all soup, mix the different broths you have together. For each quart of broth fry in butter until brown one-half cup of onions and carrots mixed in equal parts, put these into the stock, and add one-half cup of celery, one-fourth cup each of turnip, parsnip and cabbage, cut fine. This will control the flavor of the soup, and you may now add bits of corn, string beans, hard-boiled eggs, etc. To finish the flavoring, add a cup of strained tomatoes, and two teaspoonfuls of chopped parsley.

Mixed Tomato Soup.

Use as much strained celery as tomato, otherwise make the same as puree of tomato, page 274.

Mixed Broths with Tomato.

If the bits of stock are the remains from roasts of turkey and beef, mix them and cook bones, gravy, and dressing together in cold water, strain, add a cup of strained tomato to each three pints, season, and serve. Be careful to cook only a short time, as much cooking is apt to render the mixture strong.

Mixed Soup—For Class Work..

One cup of mixed stock, one-fourth cup of beans rubbed through a puree sieve, one tablespoonful of strained tomato, one-fourth tablespoonful of sugar caramel, one-fourth tablespoonful of meat caramel, one teaspoonful of butter, one tablespoonful of flour,—butter and flour browned together. Thicken with the same amount of plain flour. The browned butter and flour does not thicken much.

Mixed Soup—For Home Work.

One quart of mixed stock, colored by using cooked scraps of meat, one cup of baked beans rubbed through

a puree sieve, one-fourth cup of strained tomato, four tablespoonfuls of sugar caramel, one tablespoonful of butter, one tablespoonful of flour. Brown flour and butter together and thicken as above. Mix all smoothly together, season, and serve.

Brown Soup—For Class Work.

One-half tablespoonful of butter, one-half tablespoonful of flour. Cook together until brown. Add one cup of mixed stock, simmer five minutes, add one-half tablespoonful of butter and the same of flour rubbed together, and stir until smooth, and thickened a little.

Brown Soup—For Home Work.

Two tablespoonfuls of butter, two tablespoonfuls of flour. Cook together until brown. Add one quart of strong mixed stock, let boil up, add the same quantity of butter and flour as above, but do not brown them. Put the butter and flour for thickening into a saucepan, and when melted put into it a cup of cold water, stir until it thickens, then pour in a cup of hot soup stock, stir until smooth, and pour into the kettle. The browned flour colors, but does not thicken the liquid.

Scotch Broth—For Home Work.

To each quart of mixed stock add a scant one-half cup of cooked carrots, turnips, onions, and celery in equal parts. Add, also, one-fourth cup of cooked barley to each quart of soup, and one-half cup of strained tomato. Before serving, add two tablespoonfuls of chopped parsley. Thicken with two tablespoonfuls of butter and the same of flour.

Scotch Broth—For Class Work.

One-half cup of broth, one-half tablespoonful of barley, two tablespoonfuls of tomato, one tablespoonful of carrot, turnip, and onion in equal parts, one-fourth teaspoonful of butter, one-fourth teaspoonful of flour, one-fourth teaspoonful of parsley. Put together same as above.

Mixed Vegetable Soup—Home Rule.

One-fourth cup of cooked lima beans, one-half cup of cooked sweet corn, one-fourth cup of cooked tomatoes, three cups of cold water. Cook all together five minutes after it begins to boil, strain, season to taste with salt and pepper, and serve.

Mixed Vegetable Soup—Class Rule.

One tablespoonful of cooked lima beans, two tablespoonfuls of cooked sweet corn, one tablespoonful of cooked tomatoes, three-fourths of a cup of cold water. Put together as above.

Odds and Ends Soup—Home Rule.

Two cups of stock (meat), one-half cup of corn (cooked), one-fourth cup of beans (cooked), one-fourth cup of tomatoes (cooked), one tablespoonful of sugar, one-half of a hard-boiled egg, chopped. Heat all together, season with salt and pepper, and serve.

Odds and Ends Soup—Class Rule.

One-half cup of stock, two tablespoonfuls of corn, one tablespoonful of beans, one tablespoonful of tomatoes, one teaspoonful of sugar, one-half teaspoonful of egg.

PUREES AND CREAM SOUPS.

The class of soups with which we have been dealing contains those which are composed of meat broth flavored with vegetables. When the vegetables appeared at all, they were in distinct pieces floating about in the liquid. In the class with which we are now to deal, the vegetables play a very important part. The cooked and strained vegetable has liquid enough added to it to make it of the right consistency for soup. The mixture is thickened a little with flour, arrowroot, or cornstarch. Arrowroot thickens without having any perceptible effect in other ways. Flour thickens, but clouds some, and gives a pleasant flavor. Cornstarch gives a decided flavor to whatever is thickened with it. The liquid used in these

soups may be water, meat stock, or milk. When water is used, they are sometimes called "summer soups," to distinguish them from the ones with broth, which are known as "winter soups." For the sake of distinction, we will call those made with water or stock "purees," and those with milk or cream, "cream soups."

Puree of Baked Beans.

Pour one cup of boiling water over a pint of cold baked beans, stir until hot, and then strain through a puree sieve. Add three cups of soup stock or water, thicken as directed in remarks on soup, and serve. Use two tablespoonfuls of flour and one of butter to each quart of soup.

The object of thickening purees is that the ingredients may be better blended and mixed.

Puree of Black Beans.

One pint of beans, two tablespoonfuls of flour, one of butter. Look the beans over, and put to soak over night, drain the water off, and put the beans to cook. For one pint of beans add three pints of boiling water, and salt a little. They should cook slowly eight or ten hours to have the best flavor, and it is easier to cook them in a bean pot or in a stone jar, with a stone cover, in the oven. Put in boiling water as it evaporates, to keep the amount about the same. When done rub through a sieve, and add one pint of soup stock or water. This makes a quart in all, thicken with the butter and flour and season to taste. Slice into it one-half a lemon, cut very fine, and put in one hard-boiled egg, chopped, and serve. Tomatoes and either baked beans or black beans may be used together as directed in mixed soups, or water instead of soup stock may be used.

Both the baked beans and the black beans may be used with milk instead of water, thus making a cream soup,

but it is better to use them either in mixed soups, or with water or soup stock in purees, because the color does not harmonize so well with milk. Serve with croutons or toasted crackers.

Puree of Tomatoes.

One quart of cooked strained tomatoes (cooked in their own juices), two cups of hot water, one tablespoonful of sugar. If onion is liked, put in one teaspoonful, grated. Thicken with two level tablespoonfuls of flour and the same of butter. Cook slowly half an hour. Season to taste with salt and pepper.

Puree of Split Peas.

One cup of meat stock, one cup of dried split peas, one tablespoonful of flour, one-half tablespoonful of sugar and one-half level tablespoonful of butter.

Look the peas over, wash, and put to soak in three pints of cold water. Soak over night, or for several hours. Heat to boiling point in water in which they were soaked and put into a stone jar with a cover, or in a bean pot. Set in an oven, and let cook eight or ten hours. Fill up with hot water if they dry out too much as they cook. When taken from the oven, mash through a puree sieve, thicken the broth with the flour and butter, season to taste with salt, pepper, and butter, bring to the boiling point, and serve. They may be seasoned with salt pork added when put to cook, same as baked beans. To thicken the puree, melt the butter and flour together in a saucepan, and then add the stock cold and let boil a few minutes.

Puree of Lentils.

Prepare the lentils, and cook same as split peas, and make soup by same rule.

Cream of Split Peas.

Proceed as for puree of split peas, except use milk instead of meat stock.

Puree of Green Peas—For Home Work.

One cup of strained green peas, one tablespoonful of butter, two tablespoonfuls of flour, one quart of veal, chicken or lamb broth. Thicken the broth with flour and butter as in making drawn butter sauce (page 200) mix with the peas, let boil up, season, and serve.

Puree of Green Peas—For Class Work.

One-fourth cup of strained peas, one-half teaspoonful of butter, one teaspoonful of flour, one cup of veal or chicken broth.

Cream of Peas.

One teaspoonful of butter, one and one-half teaspoonfuls of flour and one-half cup of strained peas, one-half cup of veal or chicken broth, one-half cup of whole milk. Put together the same as puree of green peas.

Cream of Potatoes.

Wash, pare, and cut into dice six good-sized potatoes. Add one tablespoonful of minced onion, and one teaspoonful of salt. Put to cook in as little boiling water as is practicable, and when the potatoes are done mash fine and add one quart of hot milk, and stir constantly, or set off the hottest part of the stove while you mix together two tablespoonfuls of butter and two of flour. Put the mixture on the end of a wooden spoon, and stir into the liquid until the flour and butter are incorporated and the soup slightly thickened. Add salt and pepper to taste.

Puree of Potatoes—For Class Work.

Butter, one teaspoonful, flour, one teaspoonful, whole milk, one cup, potato (before cooking cut in cubes), one-half cup, onion, one-half tablespoonful. Cook potato and onion together, and mash through a sieve. Cook butter, flour and milk into a sauce (page 261), and when seasoned pour over the prepared onion and potato, and serve.

Puree of Potatoes—For Home Work.

Butter one and one-half tablespoonfuls, flour one and one-half tablespoonfuls, whole milk one and one-half pints, potato, before cooking, one cup, onion two and one-fourth tablespoonfuls. Put together as above. Cold mashed potatoes may be used in the soup instead of fresh ones.

Cream of Salsify.

One cup of strained salsify, one-half cup of strained corn, one pint chicken or veal broth, one pint of whole milk, one tablespoonful of flour, one tablespoonful of butter. Wash the roots well. Scrape off the outside, cut in pieces, and drop into cold water slightly acidulated with vinegar to prevent discoloring. Put to cook in water which is hot and slightly salted. Use just water enough to prevent burning. When tender, mash through a puree sieve, and add the pulp to the boiling chicken or veal broth. Thicken with the butter and flour rubbed together, let cook until smooth, stirring all the time, then add the milk, let boil up, season and serve.

Cream of Corn.

One pint of corn prepared as for stewing, water to cover. Cook until soft, and mash through a puree sieve. Add water to make a pint. Put into a saucepan one-half tablespoonful of butter and the same of flour, let melt, and stir together. Pour in one pint of cold milk, let boil, stirring all the time, then add the corn pulp, let boil up, season, add one-half a tablespoonful of sugar, and serve.

Cream of Corn—Class Rule.

One-fourth cup of corn after straining (either stewed or canned corn), one-fourth cup of sweet milk, one teaspoonful of flour, one teaspoonful of butter; thicken the milk with butter and flour, add the corn, mix well and bring to the boiling point, season with salt and pepper, and serve.

Cream of Lima Beans.

Lima beans are better in a cream than in a puree. To each pint of cooked lima beans add a cup of hot water, and when hot, rub through the sieve. Now add one pint of milk, season to taste, and thicken with one tablespoonful of flour and the same of butter, add a little cream if milk is used.

Corbena Soup.

Make same as the above, using one-third as much corn as beans, and as much rice as corn.

Cream of Corn and Beans.

To each cup and a half of cooked corn use one-half cup of baked beans. Add one cup of hot water, and rub through a sieve. Then add one pint of milk, put over the fire, bring to the boiling point and stir into it one tablespoonful of flour, one tablespoonful of butter (rubbed to a paste), cook four or five minutes, season with a level teaspoonful of salt, a little pepper, and serve.

Cream of Celery.

Wash clean and cut into inch lengths celery enough to fill a pint measure. Keep covered with water and boil until soft. Mash through a puree sieve, and finish as cream of corn. Use only the coarser parts and roots of celery.

Cream of Mixed Vegetables.

Mix cooked peas, lima beans, sweet corn, tomatoes, and celery in equal parts, mash through the sieve. To this pulp add chicken or veal broth one-half as much as is needed to render it of the proper consistency, and the other half cream or whole milk, and thicken as any cream soup.

Puree of Mixed Vegetables No. 1.

Mix half a cup each of carrots, turnips, and celery, and mash through the sieve, also one-fourth cup of onions

and a cup of tomatoes. Into the mixed pulp pour one quart of meat broth, thicken with two tablespoonfuls of flour and one of butter, season, and serve.

Puree of Mixed Vegetables No. 2.

Make the puree of mixed vegetables the same as mixed vegetable soup (page 272), except rub the pulp of the vegetables through a sieve into the stock, and thicken it a little, using one tablespoonful of flour and one tablespoonful of butter to one cup of the stock.

Bread-Crumb Soup.

Two cups of broth, two tablespoonfuls of bread crumbs, one tablespoonful of flour, two tablespoonfuls of butter. Heat the broth and cook the thickening in it until the flour is cooked, stir in the bread crumbs, season with one-half teaspoonful of salt and a dash of pepper.

Bread-Crumb Soup—Class Rule.

One-half cup of broth, two teaspoonfuls of bread crumbs, one teaspoonful of flour, two teaspoonfuls of butter.

Fish Chowder.

Plain crackers (six), fish picked up (one quart), sliced raw potatoes (one quart), salt pork, cut fine (one cup), onions, cut fine (one-half cup), cream or milk (one quart). Season the milk highly, and have ready to pour over the other ingredients. Saute the pork, then cook the onions in pork fat, being careful not to burn them. Now put in the potato and fish in alternate layers, and cover scantily with boilng water. Cook until the potatoes are nearly done, then add the cream and cracker crumbs. As soon as it boils, serve. To fish chowder, corn and tomatoes are often added.

Oyster Soup.

One cup of whole milk, or skimmed milk, if desired, two teaspoonfuls of butter, two teaspoonfuls of flour.

Put butter and flour in the saucepan and let melt and stir together, then pour in the cold milk, and cook the flour until it does not taste raw. Free the oysters from bits of shell, and put in just long enough to become plump and have the edges curl. Season to taste with salt and pepper.

Oyster Stew.

Use milk or water with the liquid in the oysters. Heat the liquid, cook the oysters in it until they look plump and the edges curl, then season and serve.

Lobster Bisque, or Cream of Lobster—For Home Work.

One cup lobster, one tablespoonful of butter, one tablespoonful of flour, one-half level teaspoonful of salt (in canned lobster, salt to taste). One-half teaspoonful is generally enough. Pepper to taste. One pint of milk and lobster broth mixed. Make a sauce with half the liquid and the butter and flour, as directed on page 261; when it boils, put in the chopped lobster, let boil again, add the rest of the liquid, season, and serve. The bisque should have some lobster coral to give it color. May buy dried coral, or add a little tomato, to color. To the above quantity add one-fourth of a cup of tomato, if tomato is used.

Lobster Bisque or Cream of Lobster—For Class Work.

One-half level teaspoonful of butter, one-half level teaspoonful of flour, one saltspoonful of salt, one-half saltspoonful of pepper, four tablespoonfuls of lobster, one-half cup of milk. Put together same as above.

Puree of Salmon or any Fish.

One level tablespoonful of flour, one level tablespoonful of butter, one cup of sweet milk, one cup of minced salmon, one-half cup of strained tomato, a little soda in the tomatoes. Make a white sauce with the butter, flour, and milk, season to taste, put the salmon in, and let boil, then stir the tomatoes into it.

Cream of Chicken No. 1.

One quart of chicken broth, freed from fat, one cup of sweet cream or whole milk. Put two tablespoonfuls of flour and one of butter in a saucepan. When this is melted, and the two blended, pour in one pint of cold chicken broth, stir until it boils, add the rest of the broth, and let boil a few minutes, pour in the cream or milk, and when hot, season and serve.

Cream of Chicken No. 2.

Make same as above, and add a little chopped parsley just before serving.

Cream of Chicken No. 3.

Make in the same manner, but use one pint of celery stock and one of chicken instead of all chicken broth.

Cream of Chicken No. 4.

Make just the same as No. 1, and add a few drops of onion juice.

Cream of Tomatoes.

Two cups of strained tomatoes, two cups of milk, two tablespoonfuls of flour and two tablespoonfuls of butter; thicken the milk with the flour and butter, heat the tomatoes, remove from the stove and pour the thickened milk into the tomatoes, season with salt and pepper, and serve. If the tomatoes are very acid one-eighth of a teaspoonful of soda added to them aids in preventing the soup curdling.

Cream of Tomatoes—Class Work.

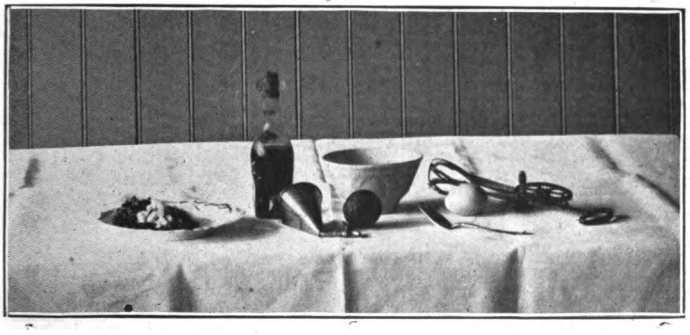
One-half cup of milk, one-half cup of tomatoes, two teaspoonfuls of flour and two teaspoonfuls of butter.

References: Parloa's Kitchen Companion, pp. 105-116; Art of Cookery—Ewing—pp. 100-108; U. S. Dept. Agr., Farmers' Bulletin No. 34, pp. 19, 20; U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 21, pp. 96, 97; Elements of Cookery—Williams & Fisher—pp. 155-161; Boston Cook Book—Lincoln—pp. 119-130.

CHAPTER XXII.

SALADS, SALAD DRESSINGS AND GARNISHES.

Salad dressings may be divided into four general classes,—cream dressings, cooked egg dressings, mayonnaise (oil dressing), and French dressing. The dressing must be chosen to suit the ingredients of the salad,



Utensils and Materials for Making Salad.

as its mission is to soften and mollify too decided flavors, or make more decided a flavor not sufficiently pronounced. The seasoning must be put into the dressing, and the salad materials and dressing so combined as to enhance rather than mar the beauty of the dish. Generally speaking, French dressing is best suited to such vegetables as lettuce, watercress, cucumbers and onions. Cream dressing suits best those things which harmonize with milk flavor, as cabbage, apples, beets, etc. Cooked dressing is palatable with most vegetables used for salads, but there

are a few which are better with oil or mayonnaise dressing. Celery and tomatoes are notable examples of this class. All meat salads are more palatable when dressed with a mayonnaise than with a cooked dressing.

Salads, especially when made of green vegetables, are very beneficial to the health, both on account of vegetable salts and acids which they furnish the system, and because they are crisp and cool, and furnish bulk in an agreeable form. In raw vegetables, the nourishment is all used. None is lost, as is often the case when vegetables are cooked. For every-day use, the simpler the dressing the better, much of the time. Frequently, salt, pepper, and vinegar are all that is needed. "Variety is the spice of life" applies to salads as well as to other things, and it is consequently better to use few materials at a time, even when making mixed salads, in order to have a greater variety.

A fish salad should always have a little lettuce or watercress cut into bits and mixed with the fish, and is often improved by the addition of boiled eggs chopped.

Mushrooms, both raw and cooked, are used as salads, though they are less desirable than many other vegetables.

A variety of flavors may be had by using tarragon vinegar, chervil, garlic, etc., when desired, in making salad dressings.

GENERAL RULES FOR SALADS.

The meats generally used for salads are chicken, beef, fish, tongue (pickled or fresh), sweetbreads, and shad-roe. Meats for salad should be fine flavored, boiled, and cooled in the water in which cooked, to render juicy as possible, but removed before the liquid gelatinizes. The meat should be freed from all fat, gristle, and undesirable parts, and cut into small dice, in order that it may the more readily be penetrated by the dressing. It may be marinated, as on page 285, or not, as desired.

In preparing green vegetables for salads, see that the vegetables are fresh, crisp, cold, clean, and the surplus moisture removed by a cloth which absorbs it without bruising the delicate materials. When selecting green and tender salad plants, as lettuce, watercress, etc., see that they are the best of their kind, and avoid bruising and breaking them. Dry them when washed, and put into a cool place with the dishes in which they are to be mixed and served. In mixing a salad in which the vegetables are cooked, avoid breaking and mushing them in putting the materials together.

In making fruit salads, avoid having them too thick. Use as little gelatine as will keep the mixture in shape when served. An orange cup is a pretty receptacle for a fruit salad. Fruit salads are sometimes dressed with oil, but this should be avoided, for the fruit flavor is not thus improved, and there are meats and vegetables which, when made into salads, are improved by the addition of a little oil. A delicate flavor of onion or garlic may be imparted to a salad by simply rubbing the dish in which it is to be served with onion or garlic.

SALAD MAKING.

Salad making is a very important branch in the preparation of food, since the salad materials require careful handling to insure success. Very pleasing and hygienic dishes may be prepared from uncooked fruits and vegetables, thus giving the system the benefit of the fruit and vegetable acids, as well as furnishing a pleasing variety.

Salads have their place in using up left overs, as some of the most delicious dishes are the result of a wise mingling of various edibles in salads. In order to become proficient in salad making, one must make a careful study of relative flavors, and the manner of handling salad materials, that their natural flavors may be retained and the mass preserve an attractive appearance.

Bits of cold fish may be combined properly with hard-boiled eggs, lettuce, cucumbers, tomatoes, or cress. Any of these are admirably adapted to the purpose. Celery and fish are inharmonious in flavor and should not be used together. A suitable garnish adds much to the attractiveness of a salad, but nothing should be used for the purpose which cannot be eaten with the salad without disguising the delicacy of the flavor, or detracting from it. A salad should always be appetizing, refreshing, and attractive.

In the preparation of salads, care should be taken to preserve the natural flavor of the edibles mingled together in the salad, and they should be selected with special reference to the effect each will have upon the other. Care should be exercised also to have the dressing such as is best suited to the peculiar flavor and condition of that salad. For example, cabbage belongs to the mustard family, hence a dressing for cabbage salad requires no mustard. A very little onion used in the dressing for tomato salad will give a pleasing result. Lettuce, being very delicate in flavor, requires no other addition to the dressing prepared for it than salt and pepper.

Salads may be appropriately divided into three classes. Let us first examine fruit salads. Many fruits are frequently served at dinners as salads. Those most commonly so used, perhaps, being strawberries, currants and oranges. A great variety of salads may be prepared by mixing the different fruits, but when this is done, one fruit should be chosen with special reference to giving flavor, and the rest mainly for bulk. Pineapple, Malaga grapes, and oranges make a pleasant combination. The strawberry seems sufficient within itself, and will form a salad which will tickle the palate and make the mouth water, with no other dressing save a little powdered sugar into which it is dipped just previous to being eaten.

As a second class, we have vegetable salads.

In a third class may be placed mixed salads. Chicken salad is a good example of this variety of salad.

To Marinate Meats for Salads.

Use just enough of the following mixture to moisten, or moisten with salad dressing, season in the same way, and let stand one hour. To make the marinating liquid, mix in the proportion of three tablespoonfuls of vinegar and one of olive oil. Season with salt until the salt is barely perceptible, then put in a little pepper. Stir up well, and pour over the diced meat or chicken. Let stand in the refrigerator one hour or more, then drain. The object is to flavor the meat a little, that the inside may not escape flavor after the salad is mixed. When a salad dressing is used instead of the marinating liquid, it must be thinned with vinegar—at least one-fourth—and a little oil added, and the mixture seasoned nicely.

Cooked Salad Dressing.

Measure four tablespoonfuls of vinegar, and let boil, then pour over two whole eggs, or four yolks beaten until thick and lemon colored. Stir while adding the vinegar. Put in a saucepan over the fire, and cook until creamy, stirring all the time. Remove from the fire and add one tablespoonful of butter for each egg; beat well, and set away until needed. To each cup of dressing add two teaspoonfuls of mixed seasoning when you are ready to use it.

The easiest way for an amateur to insure this dressing being perfectly smooth is to cook in a double boiler, or in a bowl set in hot water, or set the bowl over the teakettle. If it does lump, use a dover beater, and beat vigorously until all lumps disappear.

Mayonnaise or Oil Dressing.

Select a large coffee cup, and see that the dover egg beater will turn in it. Then put a bottle of good olive oil, a fresh lemon, and the dover beater in a pan of ice

water, and let stand one hour. Wipe the cup and beater perfectly dry. Put the egg yolk in the bowl, and beat a few turns, then put in a few drops of oil and beat again, and so continue until the mixture becomes very thick. Then wipe the lemon, squeeze the juice out, put a teaspoonful into the mixture, and beat. This will thin the dressing. Now add oil, and beat until it thickens again, and add lemon juice, and so continue until you have the desired quantity of dressing.

French Dressing.

Olive oil, three measures; vinegar, one measure. Use salt until the salt is almost as strong as the vinegar. Pepper to taste a little. Have both oil and vinegar very cold, and put the oil in a drop at a time, beating constantly until it is in. If you prefer less oil, use three parts vinegar to one part oil, stir together, and season as before. Serve this dressing on watercress, lettuce, or endive when dressed for salads.

Cream Dressing No. 1.

Mash yolks of three hard-boiled eggs fine, add two level teaspoonfuls of sugar, one level teaspoonful of salt, one level teaspoonful of mustard, one-half level teaspoonful of pepper, and stir well. Add two tablespoonfuls of vinegar a little at a time, and stir until well mixed. Add to this one pint of whipped cream, and use for dressing vegetable salads.

Cream Dressing No. 2.

One tablespoonful flour, one tablespoonful butter, one-half cup of cream, two tablespoonfuls of vinegar. Measure flour and butter, and melt together. Then pour in the cream and cook until quite thick. When done, add gradually the vinegar. When cool, add one-fourth cup of thin cream, or one-half cup of whipped cream.

Use these cream dressings in making apple and cabbage salads especially.

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Cream Dressing No. 3.

One hard-boiled egg yolk, two-thirds of a teaspoonful of sugar, one-third of a teaspoonful of salt, one-third of a teaspoonful of mustard, one-sixth of a teaspoonful of pepper, rub with the yolk, add two teaspoonfuls of vinegar and one-fourth of a cup of white sauce, or two-thirds of a cup of whipped cream. The egg whites may be cut into cubes and dressed with this dressing. This makes a very palatable salad. To make the white sauce, use one-fourth of a cup of milk, two teaspoonfuls of flour and two teaspoonfuls of butter.

Tomato Dressing.

One egg, beaten very light. Pour over it boiling hot one tablespoonful of strained tomato and one tablespoonful of vinegar, stirring while pouring. Place over the fire and cook until it thickens, then remove from the fire and stir in one tablespoonful of butter. Season with mixed seasoning No. 3, using one level teaspoonful of the seasoning and one cup of the dressing. Use on a salad made of salmon and diced tomato in equal parts.

Mixed Seasoning No. 1.

One teaspoonful of mustard, one-half teaspoonful of pepper, three teaspoonfuls of salt, one teaspoonful of sugar. Use in dressing tomato salad.

Mixed Seasoning No. 2.

Three teaspoonfuls of salt, one-half teaspoonful of pepper, two teaspoonfuls of sugar. Use this seasoning with cabbage salad or cold slaw.

Mixed Salad Seasoning No. 3.

One teaspoonful of mustard, one-half teaspoonful of pepper, three teaspoonfuls of salt. Mix well, and use what you need. Used in most meat and vegetable salads.

Tomato Salad.

Scald and cool the tomatoes as directed on page 55. Season to taste, with mixed seasoning, one cup of

cooked salad dressing (page 285). A cup of dressing will need a generous teaspoonful of mixed seasoning and one-half a teaspoonful of grated onion if made with good vinegar. Peel and cut each tomato in two parts, and put the dressing on top. Garnish with nasturtium or lettuce leaf or watercress, under the tomato.

Winter Tomato Salad.

One-fourth cup of tomato strained, one level teaspoonful of gelatine, one tablespoonful of water. Season with salt and pepper. Put the water on the gelatine, let soak until dissolved, then add the tomato, which has been heated, pour into cups, cool, and serve on a lettuce leaf with a tablespoonful of salad dressing. The tomato and gelatine mixture should be about one-half an inch thick in the glass when put to cool. This is inferior to fresh tomato, but can be used when they are not to be had.

Tomato Salad in Tomato Cups.

Select medium-sized, firm tomatoes, of good color, cut off the blossom end about one-third of the way down, scoop out the inside, and discard all inedible parts. Cut the core and the one-third which was cut off into small pieces, add to the pulp, and put to drain in a colander. Put the tomato cups where they will be very cold. Take one-half cup of mayonnaise and one-half cup of cooked dressing. Mix thoroughly with it one teaspoonful of grated onion, the same of chopped parsley and season with one level teaspoonful of mixed seasoning No. 3. Just before serving add to the drained pulp enough of this dressing to moisten well, put into the chilled tomato cups, and serve on cold plates. Garnish with nasturtium leaves, lettuce or watercress.

Frozen Tomato Salad.

Strain canned tomatoes, and season with salt and pepper. Freeze same as ice cream. Cut into egg-shaped pieces with a silver tablespoon, and serve on a lettuce leaf. Dress with mayonnaise (oil dressing), or with

cooked dressing; oil dressing is best. Put a spoonful of the dressing, seasoned as for tomato salad in cups (page 288), on the lettuce leaf beside the salad. This is inferior to fresh tomato, but may be used when tomatoes are not in season.

Tomato, Celery, and Nut Salad.

Prepare the tomatoes and dressing as for tomato salad in cups (page 288), except leave out the onion. When ready to put together (just before serving), measure the tomato, and add half the bulk of celery and nuts in equal amounts, and mix well with the tomato before adding the dressing. If oil dressing is distasteful, use the cooked dressing on page 285, and proceed in the same way. The above violates the law of harmony, because the tomatoes are soft and velvety, and the other ingredients hard and nutty, but the flavors combine well.

Onion Salad.

Put onions in a cool place or in cold water until thoroughly chilled, then cut in very thin slices (under water, or in a draught of air). To a cup of mildly acid vinegar add one teaspoonful of salt and one-half teaspoonful of sugar. Add pepper to taste, and pour over the sliced onions just before using, or use a French dressing, as given on page 286.

Carrot Salad.

Scrape small carrots, and cook whole. When done, remove from the water and cut into small dice. For each cup of water in which the carrots were cooked use one tablespoonful of butter and one of flour, and make a sauce in same manner as described on page 50. When the sauce is made, add one tablespoonful of very acid vinegar, or two of medium acid. Season to taste with salt and pepper and serve either hot or cold.

String Bean Salad—Cooked Dressing.

Select young, tender beans of some stringless variety,—wax beans are nice. Break off a little portion from each end and divide each bean pod in the center. Cook three hours slowly, but do not make broken and unsightly. Have the beans very cold. Put one cup of cooked salad dressing (page 285) in a bowl, and add to it one generous teaspoonful of mixed seasonings, and one-half a teaspoonful of grated onion, or of onion juice, extracted as directed on page 478. Mix these thoroughly with the dressing. Put the beans, a few at a time, in the bowl, and with two silver forks mix with the seasoning so that the beans may not become mushy. Serve on a lettuce leaf.

Asparagus Salad.

Make a cooked salad dressing as on page 285. Have the dressing very cold, and mix with it one-third as much whipped cream as there is dressing. Mix salt and pepper in a cup, using three teaspoonfuls of salt to one-half a teaspoonful of pepper. Mix one and one-fourth teaspoonfuls of this with a generous cup of the dressing, or enough to season it quite highly. Tie tender asparagus in bunches, and cook until done in as little boiling water as is practicable. When cold, remove the strings, lay the asparagus in the salad dish a few pieces at a time, and pour on some dressing, then add more asparagus, and so on, to avoid making a mushy, unsightly mass.

Cabbage Salad—Cooked Dressing.

One measure of cabbage, shaved fine, one-half a measure of cooked mayonnaise dressing, one-fourth measure of whipped cream. Mix salt and pepper in same proportion as usual for salads, but leave out the mustard, because cabbage has enough of this flavor already. Season to taste with the mixed salt and pepper, and put in half as much sugar as you have used of the mixed seasoning. In other words, mix one teaspoonful of salt, two of sugar and one-half of pepper, and use what you need of it.

Cold Slaw.

To each cup of vinegar of medium strength add one teaspoonful of the following mixture: Three teaspoonfuls of salt, one-half teaspoonful of pepper, two teaspoonfuls of sugar. Have the cabbage fresh and shredded very fine. Have the vinegar cold.

Cabbage Salad—Cream Dressing No. 2 (page 286).

Prepare the cabbage the same as for cold slaw, and keep out some of the finest and longest pieces for garnish. Have the cream dressing very cold, and season to taste with the mixed seasoning given for cold slaw.

Potato Salad—Home Work.

Slice plain boiled potatoes very thin. For each cup of potato used, mince one tablespoonful of onion (very fine) or grate it; use also one tablespoonful of capers, or pickles, and one-half tablespoonful of parsley, each minced very fine. To each cup of dressing used, add one tablespoonful of vinegar and one-half cup of thin cream. Mix with the dressing one and one-fourth level teaspoonfuls of mixed seasoning and the chopped materials before mentioned. Put a few of the sliced potatoes in a bowl, add some dressing, and mix carefully by lifting with two silver forks to prevent mushing the potatoes. Continue in the same way until all are in. Garnish potato salad with parsley.

Potato Salad—Class Work.

Two tablespoonfuls of dressing, two tablespoonfuls of cream, one-half teaspoonful of chopped parsley, one drop of onion juice, six capers, one teaspoonful of mixed seasoning. The above is practically one-fourth of a cup.

Hot Potato Salad.

Some prefer to mix the salad while the potatoes are hot. The flavor is somewhat different when thus made, and the salad may be served cold or hot.

Beet Salad.

Prepare the dressing as for potato salad, except leave out the onion juice and capers. Cut cold boiled beets into small cubes (one-fourth of an inch) and mix with the dressing.

Potato and Beet Salad.

Prepare the beets and dress as for plain salad. Cut cold boiled potatoes in dice same as beets, dress with salad dressing. Serve on the salad plates, first some of the potato salad, then some of the beet salad on the potato salad, using about one-half as much beet as potato. Garnish with watercress.

Cucumber Salad.

Cucumbers should always be very cold and crisp when eaten, and may be dressed simply with salt and pepper and vinegar, or with a French dressing, or with a sour cream dressing, made in the following manner: Make a white sauce as for plain cream dressing, and add to it an equal portion of sour cream. To each three-fourths of a cup of the mixture, add one level teaspoonful of the mixed seasoning and one teaspoonful of sugar, or put in salt until you can taste it a little in the vinegar, then add pepper to taste.

Lettuce Salad—Tarragon Dressing.

Make a French dressing (page 286), using tarragon vinegar instead of plain vinegar.

Lettuce Salad—Chervil Dressing.

Simply make a French dressing, using chervil vinegar. Chervil vinegar and tarragon vinegar are made by soaking chervil or tarragon in common vinegar in a closed vessel for a few days.

Lettuce Salad—French Dressing.

Lettuce should be gathered fresh just before using, carefully washed to prevent breaking the leaves, and the

water shaken off before setting away for the short time before serving. It may be dressed with a French dressing prepared as on page 286. In this case, prepare the dressing, and dress the lettuce at the table.

Lettuce Salad.

Make a cooked salad dressing as on page 285. Use equal parts of the cold dressing and whipped cream. Mix them well, and season with the mixed seasoning, page 287. Use one level teaspoonful to three-fourths of a cup.

Watercress Salad.

Prepare and dress same as lettuce.

Endive Salad.

Prepare and dress same as lettuce.

Celery Salad.

Use perfectly white and tender celery, and wash the stalks very clean. Cut in one-fourth inch lengths, and if large, cut across. Use the regular mayonnaise dressing (page 285), and to each one-fourth of a cup add one level teaspoonful of mixed seasoning (page 287). Put the dressing on the last minute possible, because the dressing draws the juice from the celery, and becomes watery.

Celery and Nut Salad.

Make same as above, except use one-third as much English walnuts, cut fine and mixed with the dressing, as you have of the celery.

Egg Salad.

Cut the whites of hard-boiled eggs in dice, and carefuly break up the yolks. Make a cooked dressing, using tarragon vinegar (page 285). Season the dressing with the mixed seasoning No. 1 (page 287), and to each cup of dressing used add one tablespoonful of chopped capers, one of chopped pickles, and one of finely-minced parsley.

Mix the whites and the yolks gently, then put a layer of the eggs in a bowl, put on some dressing, and mix carefully, put on another in the same way, and so continue until all is used. Serve on a lettuce leaf.

Salmon and Celery Salad—Class Rule.

One tablespoonful of salmon and one tablespoonful of celery cut into small dice. Dress with two tablespoonfuls of the tomato dressing, page 287.

Salmon and Celery Salad—Home Rule.

Prepare the salmon as for salmon and tomato salad. Select fresh crisp celery, and cut in dice about the same size of the salmon. Use an equal amount of salmon and celery. Mix with cooked tomato dressing. To one pint can of salmon and the same amount of celery use two cups of the tomato dressing, seasoned with two teaspoonfuls of mixed seasoning No. 3. Serve cold on a lettuce leaf on a cold plate.

Salmon Salad, Garnished with Hard-Boiled Eggs.

Prepare a pint can of salmon as for salmon and celery salad, and mix with one cup of tomato dressing, seasoned with one teaspoonful of mixed seasoning No. 1. Mix the salmon and dressing lightly, not to mush the fish, put on a platter, and garnish with thin slices of hard-boiled eggs.

Salmon and Tomato Salad—Class Rule.

Use two tablespoonfuls of diced salmon, dress with plain cooked dressing, season with mixed seasoning No. 3. Put the diced salmon on a lettuce leaf on a cold plate. On the salmon lay bits of ripe tomato, and on this drop a tablespoonful of the dressing. Use one level teaspoonful of mixed seasoning No. 3 to every cup of the dressing. This is the general rule for all salads when mixed seasoning is used in cooked dressing.

Salmon and Tomato Salad—Home Rule.

Drain the oil from one pint can of salmon and remove the bone, and cut salmon into dice. Place on lettuce leaves as in class rule, garnish with the bits of tomato, and put on the salad dressing. One cup of the dressing seasoned with one teaspoonful of mixed seasoning No. 3, will dress the salmon from a pint can.

Salmon Salad.

Pick the fish up into small pieces and mix with one-third as much hard-boiled egg as there is fish. Season highly a cup of oil mayonnaise dressing. Put a layer of the fish and egg mixed in the bowl, and put on dressing, mix lightly with two silver forks to prevent mushing, put on more fish and dressing and mix in the same way until all is used. Serve on a lettuce leaf on a cold plate. Chopped watercress may be mixed with the dressing. The cooked mayonnaise may be used with a fish salad, but is not nearly so good. Cream dressing No. 2 (page 286) may also be used with salmon salad, using lemon juice instead of vinegar in making the dressing.

Lobster Salad.

Make in same way as salmon salad, except use lobster instead of salmon. A little mustard in a lobster salad is beneficial.

Shrimp Salad.

Make same as lobster salad.

Roast Beef Salad.

Use cooked mayonnaise dressing for this salad. Cut well-done roast beef into small cubes. Mix with it an equal amount of crisp white celery cut in small pieces. Use mixed seasoning No. 3 to make highly seasoned, and to each cup of dressing used add one tablespoonful of chopped pickles, one of capers, and one of parsley, finely minced.

Chicken Salad.

Cut into dice, free from coarse pieces, four cups of chicken (boiled is best). Put the prepared chicken into a bowl, and pour over it one-half a cup of French dressing (seasoned), mix with two silver forks, set in a cool place for an hour, then drain, and mix with it two cups of tender white celery, cut into pieces a little smaller than the chicken. Mix well together and add one cup of seasoned dressing, one-third cooked mayonnaise and two-thirds oil dressing. To each cup of dressing add two teaspoonfuls of mixed seasoning, and also one tablespoonful of chopped olives, and the same of capers, if desired.

Sweetbread Salad.

Cook the sweetbreads in slightly salted water, after they have been soaked in salt water until clean. When they can easily be pierced with a toothpick, cool in the water in which they were cooked. Then tear in pieces and let stand in vinegar twenty minutes, and mix with cucumbers or celery which have been prepared and left on ice for some time. Use one-third as much cucumber or celery as sweetbreads, and dress with a French dressing which consists of three parts oil to one part vinegar, and is seasoned well with salt and pepper. Serve cold on cold plates.

Currant and Red Raspberry Salad.

Currants and raspberries mixed in equal parts are very acceptable with no dressing but sugar. Serve with the meat course.

Apple Salad No. 1.

Make cream dressing No. 2 and season to taste with the following mixture: Two level teaspoonfuls of sugar, one level teaspoonful of salt. Use very tart and mellow apples. Pare them after the dressing is seasoned, and quarter and core them, cut each eighth in very thin slices, and stir into the dressing at once to prevent turn-

ing dark by contact with the air. Serve on a lettuce leaf, or garnish with watercress.

Apple Salad No. 2.

Make a cooked salad dressing as on page 285. Have the dressing perfectly cold and mix with it an equal amount of whipped cream, and season with the mixture of salt and sugar as in No. 1. Much depends on the tartness, mellowness, and pleasant flavor of the apple, as the seasonings are very delicate.

Apple and Nut Salad.

Make same as either No. 1 or No. 2, and use half as much nuts (English walnuts) as apples. A little lemon juice or orange juice may be used to advantage if the apples are poor.

Mixed Fruit Salads No. 1.

Mix oranges, bananas, and white grapes in equal parts, cover with sweetened lemon juice, and stiffen with gelatine.

Mixed Fruit Salad No. 2.

Mix grapes and pineapple, cover with lemon juice and water mixed as for lemonade, sweeten, and stiffen with gelatine.

Orange and Grape Salad.

Use Malaga grapes. Cut in two in the center, and remove the seeds. Peel the oranges, divide into sections, and remove the thin outer skin. Intersperse oranges and grapes in the dish, and pour over them a liquid prepared the same as for banana salad, except add more sugar if acid oranges are used. Harden same as banana salad. In making fruit salads in this way, put in a portion of fruit, and cover it with the liquid, allow this to become thick, but not solid, then add more fruit, and more of the liquid, until the materials are all used.

Banana Salad.

Three-fourths of a cup of lemon juice, one and one-half cups of sugar, two and one-fourth cups of water, one-fourth box of phosphate gelatine. Put the gelatine to soak in one-fourth cup of the water. When the gelatine is soft, pour in the two cups of hot water, and add the sugar and lemon juice, then strain. Peel and slice the bananas into a serving dish, pour the gelatine over them, and set away in a cool place to harden. Put on cold plates when served.

Banana Salad—Class Rule.

One-third teaspoonful of gelatine, if granulated gelatine is used. Soak gelatine in one tablespoonful of cold water. When soft, set in hot water and stir until dissolved, then add three tablespoonfuls of sugar and five tablespoonfuls of water and two tablespoonfuls of lemon juice. Stir until sugar is dissolved, then slice full of bananas and set away to cool. Serve on cold plates.

GARNISHES FOR FOOD.

The material used for decorating a dish may be cooked or raw. The decorations may be very simple, or more elaborate. In order that any garnish fulfill the purpose for which it is intended, it must be of such color, or combination of colors, as will give the most pleasing effect with the dish to be garnished. Not only this, but let it be something which can be eaten with the dish if desired.

Parsley is much used as a garnish. The curly variety is most desirable. Chervil also makes a very desirable garnish. It has a pleasant flavor, a delicate scent, and a beautiful foliage. The pimpernel is also nice when procurable. It has a dark green color, and resembles the fern somewhat in general makeup, or appearance. The odor is something like that of a cucumber.

The beautiful, delicate young leaves of celery, with the white stems slit and curled in ice water, make a fine

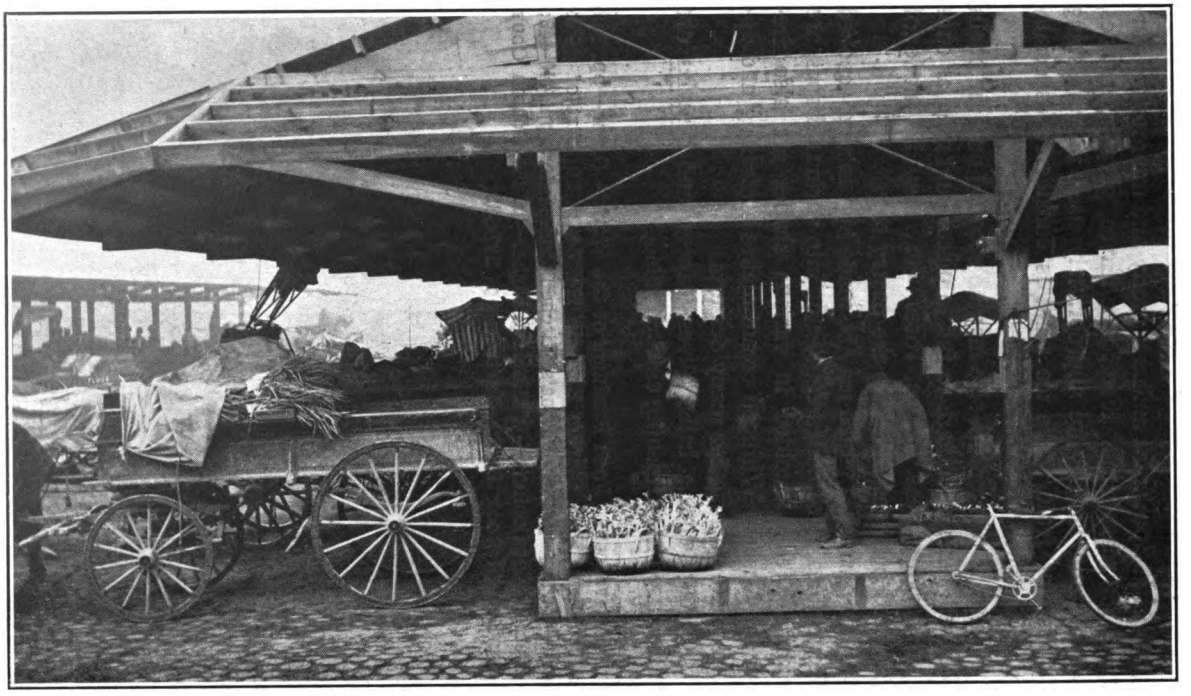
garnish. Spearmint makes a pretty and appropriate garnish for roast lamb. Fruit tree leaves, geranium leaves, or autumn leaves are appropriately used in garnishing a dish of fruit. The ice plant is considered especially nice for such garniture.

Turnips of medium size may be scooped and the shells cooked, but not enough to fall to pieces, and used as cups for serving peas. Cups, roses, etc., may be made of mashed potatoes by using the pastry bag.

The garnishes which may be made by cutting cooked vegetables, hard boiled eggs, etc., into various shapes, are many. Jellies molded in various shapes are also frequently used. Whipped cream makes a pleasing and appropriate garnish for many desserts.

Cottage cheese balls, olives, capers, and pimolas are often used in garnishing chicken salad.

References: Food Products of the World—Green—pp. 205-215; Minn. Exp. Station Bulletin No. 54, p. 59; Art of Cookery—Ewing—p. 315; Parloa's Kitchen Companion, pp. 440-442; Elements of Cookery—Williams & Fisher—p. 255; Boston Cooking School Cook Book—Farmer, pp. 287-288.



City Market.

CHAPTER XXIII.

MARKETING—CARE OF FOODS.

The selection of fresh meats, vegetables, and fruits in the city markets has most importance for city people. Farmers who supply these foods need to know at what points and characteristics the city housewife looks, that they may so prepare these foods as to please her eye. Only general statements can be written out. The woman who regularly visits the markets learns by practice the art of selecting these foods. The teacher of cookery can teach her pupils far more by practical illustrations than by written or spoken statements without the objects for illustration. Farmers get choice fresh foods for the bare expense of producing them, with no charges from transportation company, commission man, or merchant. The farmers' selection of choice foods for their own tables is accomplished mainly by extra care in raising, preparing and preserving them. Great progress has been made in facilities and methods of preserving foods, both in the farmers' home and in factories; also in raising foods of all kinds.

Farmers may have the choicest foods at very low cost. The spread of knowledge of how to raise vegetables, fruits, and meats for home consumption on the farm is one of the most important works being accomplished by agricultural colleges. A garden of vegetables and small fruits planted in rows, so as to be cultivated largely by horse power, a few pigs, a flock of good hens, some cows, and a few sheep supply the farmer's table with the most delicious and nutritious foods, at a cost far below that realized by any other class of people in the world. We are proud of our country, our farms, our farmers, and of the great men and women our farms are constantly pro-

ducing. The improved feeding of our farm boys and girls which the teaching of agricultural schools promises to bring about will have much to do with making the future generations of our nation powerful in physique, strong in mind, and pure in heart. A few of the leading thoughts used in teaching city people how to select foods in the markets are given below.

The wise farmer, in storing food for the needs of his stock during the winter, plans to have no waste by furnishing food in wrong quantities or proportions. The animals must thrive, and the food must give the requisite amount of heat-giving, muscle-forming, and energy-producing nourishment. The housewife, in solving the food question, in relation to her family, must consider the same things, and some others in addition to these. She may know that nearly one-half of the body is made up of muscle, which is one-fifth proteid, and that this, whether working proteid or idle proteid, can be built up only by furnishing proteid substance. She may understand that a certain amount of carbohydrates is necessary to furnish the energy needed by the body, and a sufficiency of carbohydrates and fats to keep up the heat of the body, yet if she does not know how "to make the mouth water," her family will not relish plain food. Among the many things which cannot be classified merely as working constituents of the food, but which are nevertheless necessary, are green vegetables, flavoring materials, and fresh ripe fruits. Everything used in the well-regulated home as relish, from the sprig of parsley to the fresh ripe strawberry, has a place to fill, and the consumer never questions whether the cellulose of the parsley aids perceptibly in giving bulk to his food, nor whether the volatile oil to which the strawberry owes a part of its pleasant flavor aids any in the carbohydrate effect of the food eaten. No amount of skill can bring back to an overripe fruit the fine flavor which it possessed when nature pronounced it finished. Excessive use of spices and condiments may in

some measure conceal the defects of an unsavory soup, but they cannot remove them. The most palatable soup can only be made by using meats and vegetables possessing a good flavor. A knowledge of marketing will enable one to have the best that the locality affords, not only as to the amount and proportions of food constituents, but as to palatability also. Fresh fruit and crisp green vegetables will aid in giving a finished aspect to a plain dinner, and pleasant sensations to a hungry person.

To Select Beef.

Meat from mature and well-fattened cattle has a better flavor, and loses less of its weight when cooked, than that from younger beef animals. Good beef has a dark red color when first cut, which changes to cherry red after a few minutes' exposure to the air. It looks juicy, is fine grained, is elastic to the touch, and the lean is finely marbled with dots of fat. A very dark color indicates an old animal; a pale, moist muscle, a very young one; and a bluish or dark red color, poor beef. The meat from the central and posterior parts of the back is generally considered the most choice, and consequently commands the highest price, for agreeableness to the palate is a large factor in the current demand and market price. There is, as a matter of fact, no more muscle-forming material in an ounce of protein from the tenderloin of beef than in an ounce from the round or shoulder. The fore quarter of a beef contains a larger proportion of bone to meat than the hind quarter, and is less tender, but it is quite equal in flavor and juiciness. The choicest steak is the porterhouse, cut from the loin of an animal where the tenderloin is largest. It contains both tenderloin and sirloin, separated by a small bone, and is frequently called pin-bone steak. Further back the pin-bone centers in a cross-bone at the top, and a cut from there is often called a T-bone steak. Steaks cut forward from the porterhouse steaks have no separating bone in them, but are nevertheless called porterhouse steaks at many markets, and are some-

times offered to unsuspecting purchasers when cut so far forward that there is no semblance of tenderloin about them. When the pin-bone or T-bone is removed from a porterhouse steak, and the two parts separated, they are known as tenderloin and sirloin steaks, respectively. The upper part of the round is used for steaks, and as seen on the block it appears as one large muscle, and not several muscles, as in that case it is from farther down the round and is more apt to be tough. There are a few cuts of round which are very choice. These can be easily distinguished by the appearance of the bone. The marrow stands out very distinctly and has a pinkish hue. Round steak is more difficult to broil successfully than sirloin, because the juices are thinner, and escape more readily. To choose a roast of beef which will have the best flavor, be tender and easily cooked, select a porterhouse, a sirloin or a choice cut of ribs. The muscle fibres in such cuts are so bound together as to make their mechanical subdivision easy, with little time and skill in cooking. Such cuts appear to be composed largely of a part of one or two large muscles, and there is consequently less connective tissue than in a cut composed of parts of several small muscles. If you wish a roast equally nutritious when intelligently and skillfully prepared, choose a so-called cheap or tough piece of meat, a roast from the chuck ribs or a piece from the round. The back of the rump makes a nice roast, but it often has part of the backbone and sometimes the rump bone in it, and is consequently not very economical. The smaller or front end nearest the loin has the most tender meat. The part between these two is not so tender.

To Select Veal.

Milk-fed calves that are from six to eight weeks old make the best veal. The fat about the kidneys in such veal is white, and the muscles are a delicate flesh color, and firm. The hind quarter is the choicest, and is a little higher in price than the fore quarter. The loin makes the

finest chops. Cutlets are usually taken from the legs. The fillet also comes from the legs.

To Select Mutton.

The best mutton is abundant in fat, which is white, clear, and solid. The leg bones are white, and the scored flesh on the forequarter is red, and the lean meat juicy, firm, and of a dark red color.

In selecting lamb, choose that which has a thick back, on which the fat is white. The kidney fat should be white also. A thick back indicates nice chops, and if they are good, other parts are more likely to be so. The bones of lamb should have a pinkish hue.

To Select Pork.

The lean of the best fresh pork is of a delicate red color, juicy, firm, and fine grained. The fat is white, and the skin thin. A thick skin indicates an old animal.

To Select Hams.

Medium-sized hams weighing from ten to twelve pounds are usually the best. Hams should be plump and round, with short tapering shanks, and small bones. The fat should be white and firm and the skin thin and unwrinkled.

To Select Poultry.

A moderate sized turkey is more apt to be young than a larger one. A hen is preferable to a gobler because usually plumper, and more delicate in flavor. The legs of a turkey should be dark and smooth, and the breast bone soft and pliable, as tough skin, rough legs, and a firm breast-bone indicate an old turkey. When turkeys or other fowls are fresh, the eyes are bright and full, and the feet and legs limber. The breast of a goose should be plump and white, and the feet yellow and flexible. Capons are the greatest delicacies known in the chicken line. They retain the tenderness of young chickens, and have the size and flavor of mature fowls. The price of

capons depends upon quality,—from eighteen to twenty-five cents a pound. The usual weight is from eight to ten pounds, but extra lots weigh twelve to fourteen pounds. Capons are usually dry picked, leaving the "ruff" (the long feathers on the neck), tail and wing quills, and thigh feathers; in fact, about all the picking done is to take the small feathers from the breast and body. Poultry for market is not drawn, but it must be kept without food for twenty-four hours before killing, so that there may be no food left in the crop, or the fowl will be apt to become tainted after lying awhile.

A hen over a year old will not roast satisfactorily. When buying a chicken for roasting, try the breast-bone. If the chicken is young the tip of the bone will be cartilaginous still, and can be easily bent. See that it is not merely broken. An older hen is better stewed than roasted. If it is roasted at all, it must be first steamed until tender. This, of course, draws out the juices somewhat, thus giving it something of the flavor of a boiled fowl.

To Select Eggs.

Eggs should have fresh-looking, not shiny, shells. If lifted in the hand, they should feel comparatively heavy. There is where farmers have the greatest advantage. Eggs are selected fresh for them daily.

To Select Fish.

In selecting fish, choose those with firm, stiff fins, red gills, and full, clear eyes.

To Select Butter.

Choose butter by its fresh odor, freedom from buttermilk and streaks of color, and see that the flavor is good.

To Select Berries and Fruits.

A dry surface is a pretty sure indication of freshness in strawberries, raspberries, and blackberries. It is wise to pour a portion of the berries from the box into the

hand, in order to ascertain whether the quality is the same throughout. Plumpness, brightness of skin, and freedom from spots of decay are the most reliable indications of freshness in such fruits as apples, peaches, plums, cherries, grapes, etc.

To Select Macaroni.

Macaroni should break with a clean, glassy surface, and should not be too white. A white appearance indicates that the flour from which the macaroni was made contained a large proportion of starch and little protein.

To Select Vegetables, etc.

All vegetables should be unwilted, and if there are leaves with them, these should be crisp. The best potatoes have smooth, unbroken skins, and should be comparatively heavy. Potatoes, carrots, parsnips, etc., of medium size, are better than very large ones, as large ones are apt to be coarse and less delicate. Corn and peas deteriorate in flavor very rapidly, and are at their best very soon after gathering. The Spanish onion, a large white onion, is very mild in flavor. Select all onions same as other vegetables. They should be plump, and not too large. Cabbage heads should be solid, heavy and unwilted. The heads of cauliflower should be close, or solid, the leaves green and fresh-looking, and the flowers creamy white.

To Select Cereals.

Cereals should be free from insects, and have a fresh odor. The best rice has large grains, and very few broken ones.

To Select Dry Beans.

Dry beans, like dried fruit, should be fresh, to give the best flavor. The white navy bean is the most desirable, as the larger white beans are coarser and less delicate in flavor. Dark beans, as red, black, etc., are less delicate than white beans. Dried lima beans can be obtained on the market, and are much cheaper, and nearly as good, as the canned beans.

when the surface of the liquid is covered with horseradish leaves, and a piece of cheesecloth tied over the top. This will admit some air without the contents being exposed to dust and insects.

Fresh berries should be emptied from the box into a dish presenting a large surface to the air, as a meat platter, and set in a cool, dry place where the air circulates around them. No fruit should be crowded. A bunch of bananas should be hung. All fruit is better kept in a cool, airy place.

Soup stock, if to be kept a day or so, should have the fat left intact over the top, as this aids in preserving it. Eggs should be kept in a cool, well-ventilated room. They will absorb odors from the surrounding air. If broken eggs are to be kept in bulk for a short time, cover the top of the vessel with several thicknesses of damp cloth, or a tight-fitting cover.

Meat in large pieces should be hung so that the air can pass around it, and of course kept cool, but not frozen. Veal should never be laid on a dish, but always hung, as it deteriorates rapidly. Fish should be cooked as soon as possible after coming into the house, as they deteriorate rapidly, and cannot well be kept with other things. Never pierce meat while cooking, as you lose some flavor that way, and the juices which escape burn readily.

Tea, coffee, spices, and all things liable to lose flavor should be kept closely covered.

Codfish should be kept where it will not dry out too much, and it should not be kept with other things. Salt fish and salted or pickled pork must be weighted to keep it under the brine, else it will have a bad flavor.

Milk and butter should be kept alone, and where the air about them cannot be contaminated with any unpleasant odor.

The jar in which yeast is kept should be sterilized at least once a week. The bread box should be scalded and sunned every baking day.

If dried fruits are to be kept over summer, they should be put into tin cans early, before insects are about, and a cloth pasted closely over where the cover meets the side of the can. All left-overs should be used as soon as possible. Cereals should be kept in glass or tin receptacles with tightly-fitting covers. Keep molasses in a cool place during the summer. If vegetables are kept in the cellar, have tight partitions, without a door, between them and the milk room.

To keep an angel cake a few days, let it stand in the pan, as it dries out less rapidly. Butter cakes stay fresh much longer when frosted. Flour must be kept cool and dry, as well as away from insects. Bread and cake should be kept in receptables which can be frequently washed and scalded. These must be close enough for cleanliness, but not air-tight.

Cheese needs air, but must be protected from all insects. When cheese is cut, cover the cut portion with oiled paper before putting away.

Smoked meat should be kept in a cool, dry, and dark place, and must be protected from insects. Smoked meat will keep for a time buried in oats, provided the place is well ventilated, dark and dry. Each piece of meat may be sewed in a piece of muslin drawn smoothly over it, and the outside whitewashed. Meat may be buried in ashes after covering with paper. It must be protected from insects, and kept dry to prevent mold.

References: Mechanical Refrigeration—J. E. Siebel—pp. 160-164; Minn. Farmers' Inst. Ann. No. 9, p. 212; U. S. Dept. Agr., Farmers' Bulletin No. 85, p. 29.

CHAPTER XXIV

PASTES AND STARCH PREPARATIONS.

Under this head we will consider macaroni, tapioca, etc. Italy has long been famous for the excellent quality of macaroni produced there. It grows a wheat which is harder and more glutenous than that grown in

Pastes Used in Soups.

most countries, though Russia produces a wheat of similar quality. Until recently very simple machinery was used, and the output for each factory was small. At the present time, a single press can manufacture into macaroni ten to twenty barrels of flour a day. The three most common forms of the paste are macaroni, spaghetti, and vermicelli, but there are, besides these, many fanciful forms, and special small pastes used in soups. America has good machinery and skilled labor, but this soil and

climate have not yet grown a wheat which is equal to that of Italy and Russia for this purpose.

Macaroni.

Macaroni is considered an excellent form of food, being both very wholesome and digestible. When made of good flour it contains a large amount of nutriment in the form of starch, protein and mineral matter. It is so dry that there is practically no loss in weight, and it is an economical article of diet. It can be prepared in a great variety of ways, and should often find a place on our tables.

Sago.

Sago is a starchy substance, made from a species of palm growing in the low lands of the East Indies. The tree does not grow high, but has a thick trunk, and at a certain time in its growth there is only a thin shell of wood on the outside, the entire central portion being filled with a starch-bearing substance. The starch is extracted by a series of manipulations and made into the sago of commerce. There are several varieties of sago. That which has been simply dried is like other starch, insoluble in cold water, but swells and becomes clear when boiled in water. There is another variety which has been so treated in the manufacturing process that it is partially soluble in cold water. Sago is sometimes adulterated by the addition of potato starch. Such can be easily detected by the use of the microscope, as the granules of potato starch are larger and more regular in outline.

Tapioca.

Tapioca is manufactured from the large, succulent roots of the tropical plant known as "manihot." It is extensively cultivated in tropical America, and on the coast of Africa. The roots are grated, and the starch left to settle from the extracted juice.

The pulp which remains may be made into a bread-like cake called "cassava," or dried and used for porridge, etc. There is one variety, the juice of which contains a poisonous acid, but it is driven off by heat, so that the prepared products are wholesome. When the starch has settled, it is dried on heated plates, and constantly stirred. This gives us the tapioca of commerce. Brazil arrowroot has the same source as tapioca, but it is dried without heating, and is known as "tapioca meal," or "Brazilian arrowroot."

Arrowroot.

Arrowroot is the name of the starch derived from the root of some species of maranta. Arrowroot gives the most transparent and delicate liquid, when cooked, of any of the starches commonly used, and is esteemed in cookery, and is much used for infants and invalids. The plant from which arrowroot is made is largely cultivated in Bermuda and Jamaica. It is also grown to some extent in Georgia and Florida. The roots, or, more properly, rhizomes, are the starch-bearing portion of the plant. The amount of starch produced varies at different ages of the plant, but when at their best, the roots produce about twenty-five per cent. of starch. This starch is sometimes adulterated with potato starch.

Cornstarch.

Cornstarch is the only other starch used to any considerable extent for food, though there is no perceptible reason why wheat and potato starches should not be used if they are sufficiently cheap to render their use advisable.

References: Enc. Brit. "Tapioca," "Arrowroot," "Sago;" Chemistry of Cookery—Williams—pp. 186-190; Goodholme's Domestic Cyclopedia, p. 340; Johnson's Universal Cyclopedia; Century Dictionary & Cyclopedia; Chambers' Encyclopedia.

CHAPTER XXV.

MILK.

It requires two pounds of milk to furnish as much nutriment as is found in three-fourths of a pound of beef of good quality. Six ounces of bread supplies an equal amount of nutriment, but the nutritive value of the given amounts of the three are not exactly the same. According to the latest advices on the food value of milk, it would make a better single food than meat, because the nutrients are more nearly in the right proportion, but it is not adapted as a single food for man. The proportion of water to solid material is so great that a very large quantity would have to be consumed to obtain the required amount of solid matter. There is too much protein for the fats and carbohydrates present. Milk is a perfect food only for the young of the animal of its own species. Cow's milk is a perfect food for the calf, but not for the human infant. There are certain diseased conditions in which milk alone is considered the best food for a time, but this should not be continued after the digestive organs are strong enough to make use of other foods with it. There is a law of nature to the effect that an organ which is not used, or which is misused, shall either cease to exist, or lose its power. Milk is ordinarily digested in the upper part of the digestive tract, and should have used with it some of the grain foods, beans, cheese, and other foods which are digested largely in the lower part of the digestive canal. Cattle thrive better on a ration containing some hay, than one consisting of grain alone. The same necessity, to a less degree, exists with man. The digestive tract needs a certain amount of bulk

References: U. S. Dept. Agr., Farmers' Bulletin No. 74, pp. 9-21;

in the food to keep all the digestive organs employed, and to produce healthy action.

Milk is very valuable in the culinary art, both because it gives greater food value, and because it increases the palatability of many dishes. When milk instead of cream must be used in coffee, hot milk will give a better flavor than cold milk, and leaves the beverage hot. Stewed onions have a less decided and consequently better flavor when served with milk dressing. Bread has a greater food value when milk is used in making it. The sauces in which milk may be used are very numerous, and in each case it embellishes the dish with which it is used, and gives it additional nutriment. For most persons milk is the best-known beverage. The following are, in substance, the conclusions drawn from an experiment made in the boarding hall of the University of Maine, in which the object was to ascertain the effect of a limited and unlimited supply of milk:

"(1) The dietaries in which milk was more abundantly supplied were somewhat less costly than the others, and at the same time were fully as acceptable. (2) The increased consumption of milk had the effect of materially increasing the proportion of protein in the diet. (3) The milk actually supplied the place of other food materials, and did not, as many suppose, simply furnish an additional amount of food, without diminishing the quantity of other materials. (4) The results indicate that milk should not be regarded as a luxury, but as an economical article of diet, which families with moderate incomes may freely purchase as a probable means of improving the character of the diet, and of cheapening the cost of the supply of animal food." *

Whole milk is more palatable than skim milk, but there is practically no difference in the amount of muscle-forming material in the two. Milk has three and three-tenths per cent. of protein; lean meat contains about

*U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 37.

thirteen per cent. of protein. Prof. Atwater says there is about the same amount of actual nutritive materials in the protein of the two. The nutrients differ both in number and kind in the two foods.

Milk contains a large percentage of water. This holds some of the solids in solution, and aids in their assimilation by carrying them to the tissues of the body. The microscopic fat globules of milk are merely held in suspension, they are lighter than other parts of the liquid. When milk sets in a cool place, they rise to the surface in the form of cream, as little wooden balls would rise to the surface of water.

Cream contains practically all the butter fat of the milk, if it has been carefully separated. It contains also some milk, more when hand-skimmed than when removed by the separator. Cream is valuable largely for its heat-giving properties. Cream and butter are not economical sources of fat, but their delicious flavor makes many other foods so much more palatable that they are highly prized as food materials.

The value of milk is usually gauged by the amount of fat it contains. The reason for this is, there are so many things which cause the amount of fat to vary, such as the change of weather, method of handling, etc. The milk of different breeds of cattle varies greatly in composition. With regard to this subject, Prof. Voorhees says:

"The influence of breed is very marked; so much so that dairy breeds are classified into milk and butter breeds, that is, those which give a large quantity of poorer quality, and those which give a smaller quantity of higher quality. With the improvement of the stock by the introduction of recognized butter producing breeds of cows, the quality of the product materially improves. Milk which is rich in fats is more apt to be rich in other nutriments, and vice versa. The most common adulterations of milk reduce the fat either by skimming or by adding water."

The farmer has another reason to be thankful that he need not depend upon the market for milk. The variation in composition of pure milk is so great as to make it possible to pay very much more for the nutrients in one quart of milk than another at the same price per quart.

"The carbohydrate of milk is in the form of milk sugar. This is a white powder of low sweetening power. It resembles cane sugar in chemical composition, but is much less soluble. When milk sours, some of the sugar is changed to lactic acid, which has the effect of coagulating the casein. When about eight-tenths of one per cent. of acid has developed, fermentation ceases, so that the sour milk may still contain much of the original milk sugar, but sour milk is often injurious to the digestive organs, and the value of the remaining nutrients may be much reduced. In each one hundred pounds of milk there are about seven-tenths of a pound of mineral matter, chiefly phosphates and chlorides of potash, soda, and lime.

"Milk is probably the most susceptible of all foods to contamination from its surroundings. It is also admirably adapted for carrying dirt and disease into the human system. People living in towns and villages must trust to the vigilance of inspectors and the honesty of the dairymen for a supply of pure milk. The farmer who understands the best methods of feeding and handling cows, and knows the necessity of absolute cleanliness in caring for all utensils used about the milk, as well as the place of keeping it, is in little danger of the many evils which have their source in the milk supply of the city.

"The sources of contamination of milk are very numerous. In ill-ventilated barns there will be dust from the hay floating in the air, ready to enter the freshly drawn milk. During the milking, dust and dirt are brushed from the under side of the cow's body. The hairs which find their way into the milk often carry large numbers of

germs. When milk stands, a sediment often collects in the bottom of the vessel, which can be credited to nothing but the carelessness of the milker. Unless the milker makes a cleanly toilet before beginning the milking, dirt from his hands and clothing is apt to enter the milk. Thorough cleaning of all milk vessels with pure water is always very essential. Impure water may affect the milk very much, and bacterial contamination is often carried into the milk when it is diluted with water. After the milk enters the house, it must be kept in a cool, well-ventilated room, or it will be further contaminated." †

Conn says: "Practically all fresh milk contains bacteria. It is possible in some cases to obtain milk which is free from them, but it is very difficult. In spite of cleanly methods, sterilized vessels, and the greatest care to prevent dirt and dust entering the milk, in the majority of cases some bacteria are present."

The most rigid cleanliness usually prevents the introduction of any harmful organisms. Vaughn believes "tyrotoxicon may originate in milk of long standing in closed vessels, owing to putrefactive changes which are due to minute organisms. The introduction of these organisms into milk hastens putrefaction, and consequently the formation of ptomaines. Milk from cows kept in filthy stables is likely to undergo speedy putrefaction, and poisonous germs may also adhere to the sides of any vessels which are not kept absolutely clean."*

When milk stands a few hours, if it is in its normal condition, it undergoes what is known as lactic fermentation. In sour milk, some of the sugar has been changed to lactic acid, the food value of which is probably less than that of the sugar which the milk contained previous to souring. Buttermilk has about the same food value as skim milk, unless much water has been added in the churn. "The acid-forming species of bacteria are of the

† U. S. Dept. Agr., Office Exp. Stations Bulletin No. 25.
* Ptomaines and Loucomaines, Vaughn.

greatest importance of any of the numerous species found in milk. The bacteria which produces slimy fermentation sometimes causes much trouble in dairies, as slimy milk produces no cream, and is useless for all ordinary purposes. There is a fermentative process which produces what is known as 'blue milk.' When growing in ordinary milk, the effect of this organism is very marked. For a few hours no change is noticed, but just about the time when the milk begins to become acid, some intense blue patches make their appearance. The faster the acid forms, the quicker the coagulation appears, and the smaller are the blue patches; while if the acid is produced more slowly, the blue patches are larger and of better color. There can be little doubt that the cause of blue milk is always some unknown source of filth. Blue milk is always an infection due to outside contamination, and its remedy is always to be found in care and cleanliness.

"A consideration of the subject of souring of milk would not be complete without reference to the effect of electricity. The popular belief that thunder storms will sour milk is so widespread that it would seem as if there must be some foundation for it. It has been asserted by many that the ozone produced in the air by electricity causes the milk to sour. In experiments in which electric sparks were discharged over the surface of milk, however, little or no effect has been produced upon it. The conclusion is that electricity is not of itself capable of souring milk, or even of materially hastening the process. Nor can the ozone developed during the thunderstorms be looked upon as of any great importance. It seems probable that the connection between a thunderstorm and the souring of milk is one of a different character. Bacteria grow more rapidly in the warm, sultry conditions which usually precede a thunderstorm, and it frequently happens that the thunderstorm and the souring occur together, not be-

*U. S. Dept. Agr., Farmers' Bulletin No. 29; also, Farmers' Bulletin No. 9.

cause the thunder has hastened the souring, but rather because the climatic conditions which have brought the storm have at the same time been such as to cause unusually rapid bacterial growth. This fact has been verified by many experiments, which have shown that, without the presence of lactic organisms, there can be no spontaneous souring of milk.

"Milk deprived of bacteria will keep sweet during thunderstorms. Dairymen find no difficulty in keeping milk, if it is cooled immediately after being drawn from the cow, and is kept cool. Milk submerged in cool water is not affected by thunderstorms. Dairymen find that during 'dog-day' weather, even when there is no thunder, it is just as difficult to keep milk as it is during thunderstorms; and they also find that thorough cleanliness in regard to the milk vessels is the best possible preventative against souring milk during a thunderstorm. It is safe to conclude, therefore, that in all cases it is the bacteria which sour the milk, and if there seems to be a casual connection between the thunder and the souring, it is an indirect one only. Climatic conditions have hastened bacterial growth, and have also brought on the thunderstorms. The same conditions would affect milk in exactly the same way, even though no thunderstorm were produced, and this effect, our dairymen tell us, is frequently observed during the warm, sultry, autumn days."

There are various drinks made from milk, among which are koumiss and matzoon. For many generations the nomadic tribes of Tartary have prepared koumiss from mare's milk. In recent times it has been prepared in America from cow's milk by the use of small quantities of yeast and sugar, keeping the milk at the temperature necessary for the best results. It is considered a valuable liquid for invalids in some cases. Matzoon is another milk preparation made by the addition of a ferment. Condensed milk is prepared by cooling the milk to

60° F., then quickly heating to a temperature of 185° F., at which point the water is evaporated. The temperature is not allowed to fall below 160° F. until the bulk is reduced to about one-fourth its original volume. If sweetening is used it should be added at this time. There is also an unsweetened condensed milk which is claimed to be thoroughly sterilized. The article known as "evaporated cream" is simply milk evaporated to a creamy consistency.

The fuel value of skim milk is only about one-half that of whole milk on account of the loss of the cream. Experimenters have found that skim milk contains nearly all the muscle and bone-forming elements of the original milk, as well as nearly all the milk sugar. One can buy as much energy-giving food for a certain amount of money in skim milk as in whole milk, because the loss of fat in the skim milk is balanced by the greater number of pounds available for the same money, giving more sugar, and both are energy-producing foods. In buying whole milk, one would pay twice as much for an equal amount of muscle-forming food as in skim milk.

It is wise to use skim milk freely in preparing many foods for the table, in families where there are little children, not only on account of its use rendering the food more palatable, but because the albumen and casein of the milk are excellent materials for the production of muscle in young and growing children, and the mineral matter is very useful in forming a solid framework for the body.

"In one hundred pounds of skim milk there are about three and one-half pounds of casein and albumen. When we take into consideration the large amount of water in both skim milk and buttermilk (eighty-seven per cent in skim milk, and ninety per cent in buttermilk), this is a relatively large amount of muscle-forming material. After removing the water from one hundred pounds of skim milk, there will be left about nine and three-fourths

pounds of solid matter, of which three and one-half pounds are casein and albumen, five and one-fourth pounds are milk sugar, a little more than three-fourths of a pound is ash, while the remainder is composed of fat and traces of other constituents." *

* Minn. Farmers' Inst. Ann. 1896, No. 9, pp. 66-68.

* Monrad's New Edition of "Pasteurization and Milk Preservation."

CHAPTER XXVI.

INVALID COOKERY.

In invalid cookery, cleanliness and good appearance are of great importance. Food and medicine are under the physician's direction, but after the kinds and quantities of food have been designated, the nurse has still much for which she is personally responsible. She must select, prepare, and serve the food.

Invalid's Tray.

An educated woman is a thinking woman. The nurse who has a true knowledge of foods thinks when she goes to the market, and endeavors to decide what selection will best subserve the needs of her patient, restricted as she is in the kind of food which he can take. If the physician has ordered fish for his patient, she is careful to select a fish with bright eyes, firm flesh, and stiff fins, for she knows that all fish deteriorate very rapidly, and that unless properly cared for by the fisherman they are unfit for food when first placed on the market. A wise

person avoids oysters which have an especially plump appearance, as they have, in all probability, been "floated," which in some cases affects their food value deleteriously, though they sell for a high price.

A piece of meat or a fowl which has been ripened to just the proper degree will not be long in passing beyond that stage, unless carefully protected. A cup of oysters or a piece of fish will spoil in a very short time if left in a warm kitchen. The carefully selected food must not be lost sight of until it is safe in a cool, well-ventilated place. Victuals are often unfit for use when not actually spoiled, and the sick person's taste will decide with great alacrity whether the article has the most perfect flavor. That such food is distasteful is not the only evil effect. Bacteria are constantly at work under favorable circumstances, and their products are often deleterious to health. A change, so slight as not to be noticed by a well person, might be sufficient to materially disturb the digestion of an invalid.

Diets are roughly divided into liquid, light, and dry; convalescent diet may be added also.

Liquid diet is used, of course, in cases in which solid food cannot be taken. Milk is important among the liquids so used. It is given in its pure state, or variously diluted. It is used hot or cold, and may be flavored with ginger, cinnamon, nutmeg, chocolate, coffee, lemon, etc.

Some ways in which milk may be used: (1) by diluting with mineral water; (2) by diluting with alkaline water; (3) by diluting with hot water; (4) acid preparations, as lobbered milk; (5) wheys, as wine whey, vinegar whey, rennet whey, etc.; (6) broths made with milk, as oyster broth and clam broth; (7) prepared milks, as condensed milk, sterilized milk, malted milk, etc.

If the physician orders a diet of milk, the nurse must serve milk alone, but it does not follow that it should always be served in the same cup or glass, or in the same

form. Serve it in different dishes, in varied and attractive forms, and with different flavorings, if permitted. Extreme care is necessary to keep milk in such condition that it will be wholesome. The cleanest and purest of milk procurable contains many micro-organisms, and they multiply very rapidly. The vessels in which milk is kept must be thoroughly washed and scalded every time a fresh supply of milk is brought in. If the milk can is a tin one, see that the scalding water reaches every portion of the can, and that it is free from every trace of milk. Pour the boiling water out over the seam, for here is a chance for dirt to cling. Unless the milk has been chilled before it was brought to you, set it in cold water and stir until it is cold; then set where it will be very cold, but not freeze. Mild antiseptics, such as borax, boracic acid, and salicylic acid are sometimes used for preserving milk for domestic purposes, but these should never be used for either sick or well, because they prevent the digestive organs doing their work in the best manner. Disease is sometimes caused by their use.

Milk may be preserved for a time by sterilizing or pasteurizing, and is often so prepared for invalids. Such treatment changes the flavor somewhat, but the taste is not usually objectionable. Condensed milk, diluted with about two parts water, is sometimes substituted for fresh milk.

In some cases, the recovery of health depends, in a great degree, on the ability of the nurse to furnish delicate, delicious, attractive, and, above all, digestible and nourishing, food.

If the smoke on a broiled steak is distasteful to a patient, the difficulty may be removed by broiling the steak in paper, or cooking it in the upper part of a double boiler.

When a varied diet is allowed, the nurse should skillfully and tactfully ascertain the wishes of her patient; then prepare just such a meal as he wants, and serve it at

the exact hour that it should be served. The life of a convalescent is not a very eventful one, and the nurse who can serve a well-cooked, dainty meal at just the right time aids in his improvement, both physically and mentally, by putting his mind at rest on this one point, at least. He no longer wonders whether he will have a satisfactory meal today.

There are at least two reasons why it is necessary that the nurse learn as early as possible the amount of food required by the patient: (1) He requires a sufficient amount of nourishment. A thoughtful woman knows practically how much nutritive material the food used contains. If the kinds of food are limited, and the patient cannot take a sufficient amount of food in one form, some means must be devised for preparing it in such form that it will be both palatable and digestible. A food becomes distasteful, no matter how palatable it may be at first, if it is offered too often in the same form. (2) If too large an amount is served, a delicate stomach will sometimes rebel, when the proper amount would be attractive. Better err by serving too little than too much. The practice of overserving is a very wasteful one, for an invalid does not care for made-over dishes, and they are not best for him. Food has its best flavor when fresh cooked and is in general more easily made use of in the body. If the patient insists that a certain tidbit is specially fine, and wishes it reserved, let it be so, but lay it away in a cool, clean place. Do not leave it in the room.

When preparing a meal for the patient, arrange the dishes on the tray before beginning the cooking, that there may be no delay in serving when the food is ready. See that the tray is large enough to admit all that is necessary without crowding, but do not have much vacant space. The perfectly clean tray should be covered with a clean, well-ironed tray cloth. The dishes should be the prettiest the house affords, and if colored, should be such as to present a peaceful, restful effect.

Apple Water.

Slice a tart apple in very thin pieces, and cover with boiling water. Set on back of range, and cook gently until the apples are soft, strain and serve.

Tamarind Water.

Wash tamarinds, break into two-inch pieces, and cover with boiling water. Let cool, strain, and serve cold in the place of lemonade as a change.

Flaxseed Water—Home Rule.

Pour one pint of boiling water over one tablespoonful of flaxseed, and let steep two or three hours. Strain, and flavor with apricot water or lemon juice.

Flaxseed Water—Class Rule.

Flaxseed, two teaspoonfuls to one cup of water, juice of one-half a lemon, sugar one tablespoonful. Strain and serve.

Apricot Water.

Wash the apricots, and soak in cold water until well swollen and soft, cook half an hour, pour the water off, sweeten to taste, and serve cold.

Toast Water.

Make dry toast, break into small pieces, put in a bowl, and cover with boiling water. Cover the bowl with a plate, and let stand a few minutes, then drain the water off, and serve hot or cold.

Hot Lemonade No. 1.

One good-sized lemon to about four glasses of water, if not desired very strong, otherwise use one lemon to two glasses. Use two level tablespoonfuls of sugar to each glass. Squeeze the lemons, pour hot water over the juice, sweeten and serve.

Hot Lemonade No. 2.

Bake a lemon until soft, and with a spoon remove the pulp. Pour over it boiling water (one cup), sweeten to taste, strain, and serve while still hot.

Cream of Tartar Tea.

Two teaspoonfuls of cream of tartar, one glass of water, sweeten to taste, and serve.

Cranberry Water.

One-quarter cup of cranberries, one-quarter cup of water. Cook together, then add two tablespoonfuls of sugar, strain, add one cup of water, cool and serve.

Curant Shrub.

Currant juice (canned) five teaspoonfuls, two level teaspoonfuls of sugar and one glass of water. The juice from fresh currants may be used in the same way.

Mulled Buttermilk.

One pint of buttermilk, one cup of cream, one rounding tablespoonful of flour, one level tablespoonful of sugar, one egg, well beaten. Thicken the cream with the flour. Put the sugar into the milk, and beat with a dover beater while it attains a boiling heat. Then stir in the cream, let boil a few minutes, and add the egg, pouring the hot liquid over it.

Egg Gruel.

One egg yolk and one white, beaten separately, one tablespoonful of sugar, one cup of hot milk. Put the yolk and sugar into a bowl, add the white, then pour on the hot milk, and beat rapidly. Flavor with chocolate or whatever desired.

Cracker or Toast Gruel.

Two tablespoonfuls of powdered toast or plain crackers, one-half cup of boiling water, one-half cup of milk, one-eighth teaspoonful of salt. Put together, boil up once, and serve. A well-beaten egg may be added. May flavor with raisins.

Rice Gruel.

One tablespoonful of rice, three cups of boiling water. Cook until the rice is soft. Add one tablespoonful of flour mixed with two tablespoonfuls of water.

Cook ten minutes, then add one cup of milk, make hot, salt to taste, and serve.

Rice and Tapioca Gruel.

One tablespoonful of rice and one of tapioca to one quart of water. Boil until dissolved, strain, season with salt, and serve.

Oatmeal Gruel.

To a quart of boiling water, add two heaping tablespoonfuls of coarse oatmeal, and half a level teaspoonful of salt. Set where it will cook, but not boil, and let cook one hour or more. When ready to serve, add half as much milk or cream (warm) as you can serve of the gruel.

Indian Meal Gruel.

Two tablespoonfuls of cornmeal, one teaspoonful of salt, one quart of boiling water. Have the water boiling, mix the cornmeal with a little cold water, stir it into the hot water, and let cook three hours. May make with milk instead of water, and, when made with water, add milk or cream when serving.

Barley Gruel.

One level tablespoonful of barley, cover with boiling water, and let boil a minute. Drain, and put in one quart of boiling water and cook two hours. Strain, season, and serve.

Arrowroot Gruel.

Mix one-half a tablespoonful of arrowroot with two tablespoonfuls of cold water, and stir it into one cup of milk which is boiling hot in the double boiler. Keep covered, and let cook half an hour. Salt to taste and serve.

Flour Gruel.

Make same as arrowroot gruel, except use twice the quantity of flour that there is of arrowroot in the above formula.

Farina Gruel.

Mix one tablespoonful of farina with three tablespoonfuls of cold water and stir it into one cup of boiling water and let cook slowly on the back of range or in a double boiler for half an hour, then add one cup of milk, and when hot serve.

Lemon Whey.

One cup of hot milk, one-half tablespoonful of lemon juice, or enough to cause curd to separate. Heat until the clear whey is seen, then strain, and add sugar to taste.

Vinegar Whey.

Make in the same manner as lemon whey, using vinegar instead of lemon juice.

Lamb Broth.

Make as directed on page 263, and see that every particle of grease is removed before serving. May use rice, cooked in plenty of water, in the broth.

Chicken Broth.

Cut up a hen as for stewing, put the bony pieces in the bottom of the kettle, and the breast on top. Cover with cold water, and cook slowly four or five hours. Pour the broth off. Rice may be served with it. See that the fat is all removed from the broth.

Beef Broth.

Select the round of beef, cut in small pieces, and cook two hours, or if there is time, select the shank or shin, remove the outer skin, make perfectly clean, and cook four or five hours. In any case, simply cover an inch deep with cold water, and cook slowly. Remove every trace of fat, and salt to taste.

Beef Tea.

Prepare lean beef by removing the fat and cutting into small pieces. Put a pound of the meat in a jar with a cup of cold water, cook, and finish as before directed for beef extract.

Beef Powder.

Use the same kind of meat, and prepare as for tea, but, instead of cooking, put to dry at once in cool oven or on the range shelf. When dry, pulverize it.

Cracker or Crust Coffee.

Toast bread crusts, either white or graham, or toast crackers by laying in the oven and allowing them to stay until of a rich brown, but do not burn. Then break in small pieces into a saucepan, cover with cold water, let come to a boil, and strain. Serve the coffee either hot or cold. Clear, or with cream or milk as desired.

Cereal Tea.

Brown corn, rice, wheat, or barley same as coffee, and pound or grind. To make the drink, use two tablespoonfuls of either cereal desired in a cup of cold water, let boil five minutes. Serve either hot or cold, with or without sugar or cream.

Sea Moss Jelly.

One-half cup of moss. Irish moss and Iceland moss are both often used for invalids. To prepare either of these, wash well, free from objectionable parts, and put to soak in cold water. After half an hour, put to cook, using the water in which it was soaked, and enough more to make three cups of boiling water, or milk may be used. Cook until the moss is mostly dissolved, and a little of the liquid cooled will thicken like jelly. Serve with lemon juice or cream to relieve the taste a little and make more palatable.

Raw Beef Sandwiches.

Use round beef steak, scraped with a knife, seasoned or not, as desired. Spread between very thin slices of stale bread.

Wild Birds.

Cook in any manner desired. Usually only the breasts are used, as there is little meat on the other parts.

Beef Toast.

Toast bread as for milk toast, lay on a warm plate, and moisten with beef broth or beef juice seasoned with salt.

Milk Toast.

Toast carefully slices of bread cut one-half inch thick. Lay on a warm plate, and turn over it the hot whole milk, seasoned with a little salt. Or make a white sauce of one and one-half teaspoonfuls of flour, one teaspoonful of butter, and one-half cup of milk, and pour this over the toast instead of milk.

Water Toast.

Toast bread as for milk toast, and moisten with boiling water, seasoned with a little butter and salt.

Beef Custard.

Beat an egg until light, pour over it one cup of beef broth, salt to taste, stir well, turn into a buttered mold, set in a pan of water, and bake slowly. When a knife thrust into the center comes out clear, the custard is done. Serve hot or cold.

Arrowroot Custard.

One cup milk, one egg, one generous tablespoonful of sugar, one-fourth teaspoonful of arrowroot. Mix the arrowroot with one tablespoonful of cold milk. Put the remainder of the milk on the stove; when it boils, add the arrowroot and cook five minutes, then pour into the beaten egg and sugar and cook very little. Flavor with a teaspoonful of chocolate in a tablespoonful of hot milk, or use a few drops of extract of lemon. If the arrowroot is left out, use two eggs.

References: Hand Book of Invalid Cookery—Boland—pp. 70-101, 254-269; Monrad's New Edition of Pasteurization and Milk Preservation; The Art of Cookery for Invalids, by Florence B. Jack.

CHAPTER XXVII.

DESSERTS.

Gelatine Dishes.

In order to be successful in making gelatine desserts, one must remember several things: Use no more gelatine than is absolutely necessary to have the mass keep its form when molded. Less gelatine is necessary in winter than in summer. Always wet a mold in cold water before putting gelatine to cool. Be careful about moving the mold before the gelatine is set, as rough treatment may cause the gelatine to split when turned out. When fruit is used in a mold, cool a little gelatine in the mold first, and place the fruit in such position as to give the best effect when the dessert is turned out. Have the dish on which it is to be served well chilled. If the gelatine sticks to the mold, lay a cloth wrung from warm water all over it a few minutes, but do not warm the outside enough to cause the gelatine to run. In making a dessert, avoid setting the gelatine in too warm a place while soaking. Such treatment may cause it to taste gluey.

Gelatine may be dissolved by pouring hot water over it after it is soaked, or by simply setting the dish containing the soaked gelatine in a dish of hot water and stirring a few minutes. The latter method facilitates cooling, as the liquid can then be added cold.

Clearing with egg will have the same effect as setting in too warm a place while soaking. Gelatines, at the present time, are so manufactured that they are clear and sparkling without special treatment at home. Use phosphated gelatines with fruit, and unphosphated with milk desserts.

Many desserts can be made from fruit juices by combining them with gelatine. This makes a light and very palatable dessert. The following illustrates the making of gelatine desserts by the use of fruit.

Strawberry Jelly.

To one-third of a box of phosphated gelatine add one cup of cold water, and let soak one hour, then set the vessel containing it in hot water and let stand, stirring until it melts. Add granulated sugar (one and one-half cups). When the sugar is melted, strain, and add one cup of strawberry juice, and the juice of one lemon. Rinse a porcelain or granite ware dish with cold water, turn the mixture into it, and set in ice water to harden. Lemon juice may be omitted with phosphated gelatine, but the products are better with it.

Strawberries in Jelly.

Prepare a mixture as for strawberry jelly. Pack fine large berries in the mold, and when the gelatine is as thick as honey, pour it over them, and set away to stiffen.

Strawberry Pudding.

Prepare a mixture same as for strawberry jelly. When the jelly begins to stiffen, whip until perfectly light and white, then add the whites of three eggs beaten to a stiff froth. Into the eggs put a pinch of salt and three tablespoonfuls of granulated sugar.

Strawberry Cream.

After adding the whites of the eggs in making the pudding, whip into the mixture two cups of whipped cream, and two tablespoonfuls of granulated sugar.

Peach Jelly.

Gelatine same as for strawberry jelly, one cup of peach juice, one cup of cold water, one tablespoonful of caramel,

one teaspoonful of almond extract. Sweeten to taste. Put together same as lemon jelly, and set away to cool.

Peaches in Jelly.

Prepare gelatine same as for strawberry jelly. Select perfectly ripe freestone peaches, pare, and stone. Lay in the mold with the split side up. When the gelatine is as thick as honey, pour it over them, and set away to harden. Serve with whipped cream.

Raspberries in Jelly.

Put large, nice raspberries in the mold, and pour over them a gelatine (made with a phosphate gelatine, same as for strawberry jelly, except use raspberry juice), when it is of the consistency of honey, let cool, and serve with cream.

Coffee Jelly.

Use one cup of coffee of the same strength as for drinking, sweetened to taste, and one level teaspoonful of granulated, unphosphated gelatine, soaked in one-fourth cup of cold water for half an hour. Pour the hot coffee over it, strain, put to cool, and serve with whipped cream.

Coffee Cream.

When the coffee jelly thickens, beat well, then beat into it one-third of a cup of whipped cream, put into molds, let harden, and serve.

Lemon Jelly—For Home Work.

Grate the yellow rind of one lemon, and steep ten minutes in one cup of boiling water. Soak one-fourth of a box of phosphated gelatine in one-half a cup of cold water until soft, then strain the cup of hot water from the grated rind on the gelatine (fill from the teakettle to make one cup if the water has evaporated), add one-fourth cup of lemon juice, and one-half a cup of sugar. Stir until gelatine and sugar are dissolved, and strain.

Pour into a dish wet in cold water, and put to cool in a cold place, but do not allow to freeze.

Lemon Jelly—For Class Work.

One level teaspoonful of gelatine (soaked in one tablespoonful of cold water), one-fourth cup of hot water, two level tablespoonfuls of sugar, one tablespoonful of lemon juice and a few drops of lemon extract. Dissolve the gelatine and the sugar in the hot water. Add the lemon juice. Strain into mold, and set in a cold place to harden. May dissolve the gelatine by setting the cup containing it in hot water and stirring, and add the water cold. It will thus harden much more quickly.

Orange Jelly.

Soak one-fourth of a box of gelatine in one-fourth of a cup of cold water until soft. Grate the yellow rind of one orange and steep it ten minutes in one-half cup of hot water (pour in water, if it has evaporated, until there is half a cup) and strain it over the softened gelatine. Add one-half a cup of granulated sugar, and stir until dissolved, then pour into it the juice of half a lemon and one cup of orange juice, and strain through a cloth. Put to cool on ice, but do not allow to freeze. Serve on cold plates. May use one teaspoonful of orange or lemon extract instead of the grated peel. In that case use cold instead of hot water in making the gelatine, and dissolve by setting soaked gelatine in hot water and stirring.

Orange Jelly—Class Work.

One full teaspoonful of gelatine (phosphate), two tablespoonfuls of water, three tablespoonfuls of orange juice, one teaspoonful of lemon juice, one and one-half teaspoonfuls of sugar, one-fourth cup hot water. Make same as lemon jelly.

Orange Cream.

Make same as orange jelly, and put to cool. When it has cooled until it is thick as honey, beat with dover

beater until white, then fold in one-third as much sweetened whipped cream as there is of the other.

Grape Cream.

Make same as orange cream, except use grape juice instead of orange juice, and use no flavoring.

Amber Jelly—Class Work.

One teaspoonful of gelatine soaked in one-fourth cup of cold water. When gelatine is soft, set in hot water and stir until dissolved, add one-fourth cup of cold water, and one-half teaspoonful of sugar, three tablespoonfuls of caramel, and two drops of almond extract. Strain, turn into molds, and set away to cool.

Apple Jelly.

One teaspoonful of gelatine soaked in two tablespoonfuls of cold water, one-half cup of water in which the apples were cooked, two tablespoonfuls of caramel and one and one-half teaspoonfuls of sugar. When gelatine is soft set the cup in hot water and stir until gelatine is dissolved, then add the remaining water and apple juice. Lay the nicely cooked eighths of the apples in the mold and pour over them part of the liquid, let cool to the consistency of honey, put in more apples, more liquid, and so on until all is used, set away in a cold place to stiffen. Serve with or without whipped cream.

Prunes in Jelly—Class Work.

One level teaspoonful of gelatine, one tablespoonful of liquid from prunes, one tablespoonful of sugar, one-fourth cup of water, one teaspoonful of lemon juice, one tablespoonful of cold water, two stoned prunes. Make same as apple jelly, put the prunes in the bottom of the mold, turn the mixture over them. Use no flavoring, of course.

Snow Pudding.

One-fourth of a box of gelatine soaked in one-half a cup of cold water until soft. One-fourth of a cup of lemon juice, or a little less than that, if phosphated gelatime is used. Pour the lemon juice and the gelatine (when

dissolved) together, and pour on enough water to make a pint. Add one-half cup of sugar, and strain. Set in ice water, and when it is thick as honey beat with the dover egg beater until perfectly white. Beat in one teaspoonful of lemon extract. Beat the whites of three eggs very light, and add one-half cup of sugar. Fold the whites into the beaten mixture. Let harden, and serve on cold plates.

Sauce for Snow Pudding.

The yolks of three eggs, beaten very light. Add to the yolks one level tablespoonful of sugar. Pour over this three-fourths of a cup of hot milk, pouring slowly, and stirring rapidly to prevent lumping. Cook slowly until it coats the spoon. Remove from the fire at once, and flavor with one-fourth of a teaspoonful of lemon extract. Serve cold.

Orange Pudding.

Make same as snow pudding, using orange instead of lemon juice, and flavor with orange extract.

Grape Pudding.

Make same as snow pudding, except use grape instead of lemon juice. Needs no flavoring.

Charlotte Russe.

Soak one and one-half tablespoonfuls of unphosphated gelatine in four tablespoonfuls of cold water. Pour one pint of boiling milk on three beaten egg yolks, return to the stove, and cook until you do not taste raw egg. Add one and one-half tablespoonfuls of gelatine, one teaspoonful of vanilla or lemon, beat thoroughly. Fold in three-fourths of a cup or more of whipped cream, and three egg whites, beaten stiff, with four tablespoonfuls of sugar added to them. Pour into a mold lined with sponge cake or lady fingers.

Chocolate Cream.

Make chocolate cream in the same way, except add melted chocolate to the mixture while hot, and use two eggs instead of three.

Ginger Cream—For Home Work.

Make ginger cream in the same way as charlotte russe, using four tablespoonfuls of chopped ginger instead of vanilla.

Ginger Cream—For Class Work.

One heaping tablespoonful of ginger, cut fine, one dessert spoon of syrup of the preserved ginger, one egg yolk, well beaten, two-thirds of a cup of cream. Cook cream, ginger, and well-beaten egg together, then strain on the gelatine. Set in ice water, and, when cool, beat until white. Use two teaspoonfuls of unphosphated gelatine, and soak in two tablespoonfuls of cold water until soft.

A Delicate Dessert.

Two teaspoonfuls of unphosphated granulated gelatine soaked in two tablespoonfuls of cold water, one teaspoonful flour, one teaspoonful water, one cup milk. Cook the water, flour and milk together five minutes, and pour over a well-beaten egg yolk. Cook until it coats the spoon. When cool, add the soaked gelatine. When very slightly stiffened, beat in the well-beaten white of the egg. Flavor with vanilla or preserved ginger. Serve with whipped cream.

Milk Charlotte—Class Work.

One level teaspoonful of unphosphated gelatine, one tablespoonful of cold milk, three tablespoonfuls of hot milk, two level tablespoonfuls of sugar, one-half saltspoonful of flavoring (one saltspoonful equals one-eighth of a teaspoonful), one cup of whipped cream, or one-half a cup of beaten white of egg and one-half a cup of cream. Soak the gelatine in the cold milk until soft, then pour the hot milk over it, stir until dissolved, and strain. Add the sugar and the flavoring. Let cool until thick as honey, then beat until white, and add the whipped cream, or the beaten egg white.

Milk Charlotte—Home Rule.

For home work double the Class Rule.

Macedoine Gelatine Pudding.

Phosphated gelatine, one-half box (more in summer); water, three cups; oranges, two; bananas, three; lemons, two; dates, ten; walnuts, fifteen; sugar, two cups. Soak the gelatine in one cup of cold water until soft. Pour a pint of boiling water over it, and stir, add the juice of the lemons, and strain. Wet a mold, and pour in gelatine to cover the bottom about half an inch thick. When it thickens, slice in a little of each kind of fruit, and pour some gelatine over it. When the gelatine is thick, put on the chopped nuts and dates, and pour some of the remaining gelatine over it, and let harden. Then slice on the remainder of the fruit, and pour on the rest of the gelatine. Set away to harden. Serve with whipped cream.

PUDDINGS AND PUDDING SAUCES.

Caramel Souffle—For Class Work.

One level teaspoonful of cornstarch, one-fourth cup of water. Cook together until thickened. Separately beat the yolk and white of an egg until light, and add the cooked mixture to the yolk a spoonful at a time. Then fold in the beaten white, put into buttered timbale molds, and bake in a very slow oven. Flavor with three drops of vanilla, one tablespoonful of caramel, and a little salt. Serve with caramel cream. The cornstarch and water take the place of one egg white. When the souffle is removed from the oven, sprinkle thickly with powdered sugar, and bar across the top with a hot poker. Serve immediately.

Caramel Souffle—Home Rule.

Caramel souffle for home work, use three times the amount given for Class Work.

References: U. S. Dept. Agr., Office Exp. Stations Bulletin No. 21, p. 13; Parloa's Kitchen Companion, pp. 702-705;

Boiled Custard—For Home Work.

One cup of boiling milk, yolks of two eggs, beaten very light, or one whole egg. Pour hot milk over the beaten egg, a little at a time, beating constantly. Add two tablespoonfuls of sugar to yolks, and flavor to taste. Cook until it will coat the spoon with a thin film when dipped into it, but be careful not to cause it to curdle. If making in large quantities, pour into a dish when done, and set in cold water, and stir while it cools. If the whites and yolks are beaten separately, pour the hot custard over the beaten whites, which will cook them enough.

Boiled Custard—For Class Work.

One-half cup of milk, one egg, one tablespoonful of sugar. Proceed as above. May use two teaspoonfuls of flour with it. In that case, cook the flour and milk, and pour over the egg.

Caramel Custard.

Make same as above, except use four tablespoonfuls of caramel instead of two of sugar.

Baked Custard.

One teaspoonful lemon extract, three eggs, one pint milk, three tablespoonfuls of sugar, one-eighth teaspoonful of salt. Beat the eggs slightly, mix with the other ingredients and set the vessel containing the custard in a pan of water to cook and when set and firm remove from oven.

Baked Custard—For Class Work.

One cup of milk, one egg, one and one-half tablespoonfuls of sugar, a dust of salt.

Beat the eggs just enough to have them mix with the milk. Stir the sugar into the mixture. Flavor to taste with nutmeg or lemon extract. Set the dish containing the custard in water to bake. Test by inserting a knife to see whether it comes out clean. It should be baked just enough to stand. Too much baking makes it watery.

Yolk Custard.

Four egg yolks, one cup of water, one heaping (two level) tablespoonful of cornstarch, two tablespoonfuls of sugar, one teaspoonful of salt. Flavor with vanilla. Beat the yolks light, add the sugar, cornstarch, and salt, and mix together. Then add the water and flavoring. Turn into a pudding dish, and bake slowly in a moderate oven.

Yolk Custard—Class Rule.

One large egg yolk, one tablespoonful of flour, one-half cup of water, one tablespoonful of sugar. Make and bake same as directed in home rule.

Caramel Pudding.

Use four eggs to a pint of milk, and make same as above. Coat the sides of the dish with thick caramel, pour the custard in, and bake gently. Turn out, and allow the caramel to run over the pudding as a sauce.

Caramel Pudding with Water.

Four egg yolks, or two whole eggs, one cup of water, one heaping or two level tablespoonfuls of cornstarch. Sugar and salt to taste. Cook cornstarch and water together, and, when cooled a little, mix with the beaten eggs. Coat the sides of the dish with caramel, pour the custard in, and bake slowly. Turn out and serve, allowing the caramel to run over the pudding as a sauce.

Cornstarch Pudding—For Home Work.

Use one quart of milk, four rounding or eight level tablespoonfuls of cornstarch, a pinch of salt, and one-half a cup of sugar. Heat the milk to boiling point, and stir in the sugar, salt, and cornstarch, mixed together. When cooked sufficiently, turn over the beaten whites of two eggs, and stir in. To make it yellow, use the yolks of the eggs. To make it pink, use the whites of the eggs and some strawberry juice. Serve cold with or without cream.

Cornstarch Pudding—Class Work.

One cup of milk, two level tablespoonfuls of cornstarch, one level tablespoonful of sugar, a pinch of salt, four

drops of flavoring, one egg yolk, or one egg white, if the white pudding is desired. Cook the milk, cornstarch and sugar together, and pour over the beaten egg while still hot.

Rennet Pudding.

One pint of sweet milk (whole), one level tablespoonful of sugar, one mustard spoon or one-fourth of a teaspoonful of liquid rennet, flavoring, two drops. Heat milk to 90° F., then add the rennet, flavoring and sugar, Set in warm water until it begins to stiffen, then in a cool place. If left too long in the warm water, the curd and whey will tend to separate when turned on the dish to serve. For this reason it is better to give it constant attention until it is ready to set away.

Rice Pudding—For Home Work.

Rice, one measure; milk, nine measures; sugar, three-fourths of a measure; salt, one-fourth of a teaspoonful. Put all together in a baking dish, and bake slowly until it is of a rich, creamy consistency, or, better, let stand on the back of the stove or range, and slowly evaporate the milk. Stir the scum under as it forms.

Rice Pudding—For Class Work.

Rice, one tablespoonful, sugar three teaspoonfuls, speck of salt, milk, a generous three-fourths of a cup.

Snow Pudding.

Take one measure of rice to three of liquid, and cook in the usual way. Turn into a pudding dish, and pour over the top the following cream: White of one large or two small eggs, beaten stiff, two tablespoonfuls of powdered sugar, and one teaspoonful of lemon essence, and last, six teaspoonfuls of sweet cream. Mix the sugar and essence carefully with the beaten whites, and spread over the rice. Set in the oven until the meringue hardens, then remove from oven, and dot over top with lumps of jelly. Serve either hot or cold.

Meringued Rice.

Make a plain rice pudding. When done cover with a thick meringue made as on page 362. When browned slightly, put bits of bright jelly over the top.

Apple Tapioca Pudding.

Soak over night, in three cups of water, one-half cup of tapioca. Cook one hour. Pour this over one quart of tart apples, pared and cored, add one-half cup of sugar, one tablespoonful of lemon juice, and one-half teaspoonful of salt. Cook until apples are tender. Serve hot or cold. Put a teaspoonful of currant jelly on top of each apple just before serving.

Tapioca Cream.

Soak tapioca in cold water until soft, then take equal measures of tapioca and milk. Use three eggs to one pint of the mixture, and three tablespoonfuls of sugar. Cook tapioca and milk until the tapioca is clear. Beat the eggs well, and stir in, let cook a few minutes, and serve hot or cold. Flake tapioca may be used instead of pearl tapioca.

Tapioca Snow Pudding.

One egg white, beaten stiff, with four level tablespoonfuls of sugar added when first beginning to beat, one cup of sweet milk, one tablespoonful of tapioca, one-quarter teaspoonful of salt. Soak the tapioca in enough water to cover it. When the water is absorbed, add the milk and cook in a double boiler until the tapioca is transparent, then pour the tapioca over the beaten egg white, and fold together. Flavor to suit the taste, and serve either cold or warm.

Strawberry Tapioca Pudding.

Soak one cup of pearl tapioca in three cups of cold water over night, or several hours. Add half a teaspoonful of salt, and set in water to cook, or put in double boiler. When it is boiling hot, let cook until the tapioca is transparent. Have the strawberries washed, hulled,

and sugared. When the tapioca is cooked, add three-fourths of a cup of sugar to the juice that has drained from the berries, and mix with the tapioca. Add a little butter, and when the mixture has cooled sufficiently not to cook the berries, put them in also. Use one pint of hulled strawberries for the above amount.

Peach Tapioca Pudding.

Make in the same way as apple tapioca pudding, except use peaches for fruit. Any of the following combinations of fruits may be used in tapioca puddings, in gelatine desserts, or in frappes, sherbets, and water ices: (1) Strawberries, raspberries, and cherries; (2) red raspberries and currants; (3) grape, pineapple, orange, and lemon juice; (4) lemon juice, orange, and banana; (5) pears, oranges, and lemon juice; (6) strawberries and lemon juice; (7) pineapple, apple, and lemon juice; (8) bananas, grapes, lemon juice, and oranges molded in jelly, and garnished with grapes, limes, or apricots, make a pleasing dessert; (9) pineapple and orange; (10) pear, cherry, lemon and strawberry; (11) bananas, lemon juice, and strawberries; (12) pear, cherry, orange, and pineapple; (13) pineapple, grape, and orange; (14) raspberry, currant and banana; (15) currant, pear, cherry, and strawberry; (16) pear, cherry, red raspberry and strawberry; (17) pineapple, pear, and currant; (18) cherry, orange, pear, and a trace of pineapple; (19) peaches, red raspberries, bananas, and lemons; (20) banana and lemon juice; (21) black raspberry and currant; (22) white grapes, lemon, and pineapple; (23) red raspberries, red currants, red cherries, and white currants; (24) red raspberries and cranberries; (25) apples, pinapple, oranges, and lemon juice.

Fig Pudding—For Home Work.

Flour, three cups; suet, one cup; figs, one cup (chopped); sour milk, one cup; soda, one-half teaspoonful; salt, one teaspoonful; sorghum molasses, one cup; eggs,

two, well beaten; cloves, one-fourth teaspoonful (ground); nutmeg, one-fourth teaspoonful (grated); cinnamon, two teaspoonfuls; ginger, two teaspoonfuls. Mix the suet, flour, spices, figs, and salt well, then put in the eggs, molasses, sour milk, and soda, and mix well. Cook in a double boiler, or better steam in a brown-bread mold for three hours. Serve with hard sauce flavored with nutmeg, ginger, and lemon peel, or with liquid sauce flavored with vanilla and ginger. Use one-half teaspoonful of lemon peel and one-fourth teaspoonful each of nutmeg and ginger. Or use one-fourth teaspoonful of ginger and one teaspoonful of vanilla in flavoring the sauce.

Fig Pudding—For Class Work.

One cup flour, one-third cup of suet, one-third cup figs, one-third cup milk, one teaspoonful baking powder, one-third teaspoonful salt, cloves, nutmeg and ginger mixed, one-third cup molasses, one small egg. Steam one-half hour.

Nunn's Puffs.

Seven-eighths cup of bread flour, one cup of water, one-fourth cup of butter, one-fourth teaspoonful of salt, four eggs. Boil the water, salt, and butter. Put into this the whole quantity of flour, and stir, cook well. Cool a little, and stir in the eggs one at a time, as in cream puffs. Stir five minutes after adding each egg. Fry by teaspoonfuls fifteen minutes in moderately hot fat. Dust with powdered sugar, and serve as any fritter.

Cream Puffs No. 1.

One cup of boiling water, one cup of flour (heaping), one-half teaspoonful of salt, two whole eggs, and whites of three more, one-fourth cup butter. Boil the water, salt, and butter. When boiling, add the dry flour, and stir well for five minutes. When cool, add the eggs, one at a time, thoroughly incorporating each before adding another. When all are in, drop the batter by the spoonful on a buttered tin. Bake from twenty to thirty minutes.

They should be a delicate brown all over. Do not open the oven door for twenty minutes after putting them in.

Cream Puffs No. 2.

Three-fourths of a cup of flour (Pillsbury's Best), or equally strong bread flour, one-half of a cup of water, one whole egg, whites of two eggs, two tablespoonfuls of melted butter. Make same as No. 1.

Filling for Cream Puffs—Class Rule.

One-half cup of milk, one level tablespoonful of cornstarch, two tablespoonfuls of cream, one-half teaspoonful of flavoring, three level tablespoonfuls of sugar, one-half of an egg white. Heat the milk to boiling point, and stir in the sugar and cornstarch mixed together. When cooked, add the cream, the egg white, and the flavoring. Two tablespoonfuls of flour may be used in place of the cornstarch.

Filling for Cream Puffs—Home Rule.

One cup of milk, two level tablespoonfuls of cornstarch, four level tablespoonfuls of cream, six level tablespoonfuls of sugar, one teaspoonful of flavoring, one egg white. Make same as directed above.

Apple Pudding.

Butter the dish, put in a dust of sugar, and cover the bottom with tart apples, pared, cored, and quartered. Put over them a shake of salt, then crusts of bread which have been cut thin and soaked in water. Cover the apples out of sight, then put on another layer of apples, and cover the top with crumbs, prepared by using one teaspoonful of melted butter to every two tablespoonfuls of bread crumbs. Cook covered one-half hour, then remove the cover, and brown. Serve with a hard sauce or with caramel sauce.

Brown Betty.

Butter the baking dish, pare, core and quarter tart apples, put in the dish, and sprinkle with sugar. Then put

on buttered crumbs, sprinkle a little sugar over them, and bake. Serve hot with a liquid sauce, cream, or caramel sauce (page 355).

Apple Snow.

Three large, tart apples. Three egg whites, one-half cup of granulated sugar. Have the eggs and apples cold. Put the egg whites into a bowl, put in three tablespoonfuls of sugar, beat a little with a spoon or egg beater, put in more sugar, beat again, and so on until all of the sugar is in, then beat until the mixture will stand in points when the beater is lifted from it. Core the apples, and grate into the mixture, grating only a portion at one time, then beating in with the mixture. Flavor with almond extract, pile in a glass dish, and set on ice until needed. Do not make the snow long before using, as the apple will discolor. This amount will serve seven or eight people. Serve with or without whipped cream.

Baked Apple Pudding.

Two tablespoonfuls of butter, one-half cup of flour, one-quarter teaspoonful of salt, one-half teaspoonful of baking powder (or use sour milk and one-eighth teaspoonful of soda), one very small egg, one-fourth cup of milk. Beat the yolk of the egg light and add the salt, the milk, and part of the flour. Beat up well, then add the melted butter. Beat this in, then add remainder of flour. Whether baking powder or soda is used, put it in part of the flour, and put in at the last, just before folding in the well-beaten egg white. Put the batter in buttered muffin tins, and on the top of each lay a ring of apple (apples pared, cored, and cut in rings one-fourth inch thick) dipped in sugar. Bake in oven same as for muffins. Serve with a lemon sauce.

Dried Apple Pudding.

Make a batter same as for baked apple pudding, except use one-fourth cup of the water in which the apples have soaked over night, instead of milk. Use the dried apples

after soaking over night the same as the fresh apples. Dried apples are better chopped and mixed with the dough. These puddings may be steamed if desired, but are better baked.

Indian Pudding.

Beat three eggs, and mix with one pint of milk, four tablespoonfuls of sugar, and one pint of cornmeal. Add one-fourth teaspoonful of ginger, or enough to flavor nicely. Put into a pan having a large diameter, but shallow. Let set on top of stove, and keep mixed until meal swells, then put in oven, and bake ten or twelve hours, or until it wheys. Serve with cream.

Suet Pudding—For Home Work.

Three teaspoonfuls of baking powder, one cup chopped suet, one cup raisins, one cup molasses, one cup sweet milk, four cups flour, one-eighth teaspoonful soda (for the molasses). Steam three hours. Put together same as fig pudding.

Suet Pudding—For Class Work.

Three teaspoonfuls of baking powder, one cup chopped suet, one level teaspoonful of baking powder, one-fourth of a teaspoonful of salt, one-fourth cup of milk. Cook until done.

Bread Pudding.

Slice the bread, and spread daintily with butter. Then make a custard, using two eggs to one pint of milk, sweeten to taste, dust with salt, then pour the mixture over the bread in a baking dish, and bake. Flavor to taste.

Steamed Fruit Pudding.

Flour, three cups; suet, picked fine, one cup; sour milk, one cup; soda, one-half teaspoonful; salt, one teaspoonful. Mix the flour and the suet well together. Mix the soda in a little flour, and add at the last. Put the flour and the salt into the milk, and mix all together. Add two well-beaten eggs. Put into a pudding mold about an

inch of the batter, then put in a layer of fresh fruit, pared, cored, and sweetened, put in more batter, then more fruit, etc., until all is used. Do not fill nearer than three inches of the top. Serve with creamy sauce, foamy sauce, or something of the kind.

Rhubarb Charlotte.

Butter a granite ware or earthen pudding pan, and lay on the bottom slices of stale bread which have been cut very thin,—crusts are just as good. On this put raw pieplant (plenty), and sugar to sweeten it. Then put on another layer of bread and pieplant and sugar, and on the top put buttered crumbs. Bake in the oven until the pieplant is done and the crumbs brown. Serve with whipped cream.

Pieplant Shortcake

Two cups of flour, one-half teaspoonful of salt, one-half teaspoonful of soda, one cup of sour milk, one-third cup of fat. Sift the soda with the flour, put in the salt, and rub the fat into the flour. Mix with the milk, manipulating as little as possible. Roll one-half inch thick. When baked, cut with a hot knife, and butter the cut surfaces slightly. Spread pieplant on the buttered surfaces, placing one on top of the other. Serve with whipped cream.

Filling.

Cut tender, fresh pieplant in inch lengths, and put to cook with only the water that clings to it when washing. When done, sweeten and remove from the stove.

Maple Sugar Sauce.

Maple sugar one-fourth of a pound. Melt in one-half cup of water, and boil until it threads, then add the juice of one lemon. Beat the whites of two eggs to a stiff foam, put them and the syrup together the same as a boiled frosting, and when they are well mixed add one-half cup of cream.

In making pudding sauces or creams where the egg white is to be beaten stiff and the cooked mixture poured over it, it is better to beat the egg white and sugar together, as for a meringue. This gives a smoother sauce.

Hard Sauce for Hot Puddings.

One-fourth cup of butter, one-half cup of powdered sugar, one-half teaspoonful of lemon or vanilla extract, a little nutmeg. Rub the butter until creamy in a warm bowl, add the sugar gradually, then the flavoring. Pack it smoothly in a small dish, and keep on ice until perfectly hard.

Lemon Sauce.

Sugar, two measures; water, one measure; lemon juice (one lemon to one quart). Flavor with lemon peel. If flour is used to thicken, take two tablespoonfuls of flour and one of butter to one cup of liquid. If cornstarch or arrowroot is used, take one-half as much as of flour.

Foamy Sauce.

One-half cup butter, one cup powdered sugar, one teaspoonful of vanilla, two teaspoonfuls fruit juice or syrup, one-quarter cup boiling water, white of egg, beaten to a foam. Cream the butter, add the sugar, vanilla, and fruit juice. Just before serving add the boiling water, stir well, then add the egg white and beat until foamy.

Cream Sauce.

One-fourth cup of butter, one-half cup of powdered sugar, sifted, two tablespoonfuls of lemon juice and a little nutmeg, two tablespoonfuls of sweet cream. Cream the butter, add the sugar slowly, then the lemon juice and the cream. Beat well, and just before serving place the bowl over hot water, and stir well until smooth and creamy, but do not melt the butter. When the lemon juice and the cream are added, the sauce has a curdled appearance. This is removed by thorough beating, and by heating just enough to blend the materials smoothly.

Caramel Cream.

One teaspoonful of flour, one teaspoonful of water. Mix together, and add one cup of sweet milk. Simmer slowly five minutes. Pour this over the well-beaten yolk of a small egg, and cook until it coats the spoon. Add four tablespoonfuls of strong caramel. Pour over the well-beaten white of the egg, to which one teaspoonful of sugar was added when first beginning to beat the egg. Serve with apple pudding.

Caramel Sauce.

Hot water, one pint; sugar, one cup; cornstarch, one tablespoonful, or flour, two tablespoonfuls. Put the sugar and about half a cup of water in a saucepan on the range. When it begins to brown, put where it will cook more slowly. When as brown as desired, add enough hot water to make the pint. Put in another vessel, add the flour mixed with a little cold water, and cook until it thickens. Do not stir while the sugar is browning, or it will grain. Serve with brown betty and steamed fruit puddings.

Sauce for Rich Pudding.

One egg, two tablespoonfuls of butter, beaten to a cream, two tablespoonfuls of water, one-third of a cup of granulated sugar. Cook sugar and water to the boiling point, and pour over the beaten yolk, stir in butter, and whip white into it. Flavor with one-half teaspoonful of vanilla.

Vinegar Sauce.

One cup brown sugar (maple, best), butter the size of an egg, one tablespoonful flour, a pinch of salt. Stir together, and pour over them a cup of boiling water. Let boil, and add one tablespoonful of vinegar, and flavor with lemon or vanilla, two teaspoonfuls.

Mock Cream.

One teaspoonful flour, one-half teaspoonful butter. Cook together until well mixed. Add one cup of sweet milk, and let simmer five minutes. Pour over the well-beaten yolk of a small egg. Put again into the saucepan, and cook until it coats the spoon. Remove from the fire, and when cooled a little, pour over the well-beaten white, to which one tablespoonful of sugar has been added. Add a dash of salt, and flavor with vanilla. Mock cream may be used with apple dumplings. The flavor may be varied by using two tablespoonfuls of caramel.

Sauce for Plain Pudding.

Butter, one-fourth cup; sugar, one cup; water, one-fourth cup; flour, enough to thicken (one teaspoonful). Mix flour with a little of the sugar. Cream remainder of the butter and sugar. Pour hot water over the flour and cook. Flavor with lemon and nutmeg. Beat the creamed butter into it.

PASTRY.

Pastry may be made with lard, cream, cottolene, suet, drippings, butter, cottosuet (a mixture of cottonseed oil and suet), chicken fat, or mutton fat, but butter is best, because it has the most pleasant flavor.

For plain paste, use as much water as shortening. To make a rather rich plain paste, use half as much water as shortening. In all cases cut the butter or fat into the flour, and then add the water. The less water used after the particles can be made to adhere the better, if you wish a brittle crust. Always have the water cold as possible. Use plenty of extra flour to prevent sticking, if necessary. Put together quickly, and handle as little as possible, because handling makes the dough tough. To roll directly from you is considered better than back and forth.

Make upper crust first, and put to chill while you roll the under crust. Make the lower crust a little thicker than you make the upper one, flour well, and set in a cool place while the filling is prepared.

A lemon or custard pie should be baked in a deep pan. If you must use a shallow tin, cut the crust very large, and make stand up by pinching into place. In making such one-crusted pies as are better baked and filled afterwards, as cream pies, pierce the crust with a fork or pastry jagger before putting into the oven.

The trimmings of piecrust can be used for cheese straws, tarts, or rissoles.

In plum, cherry, and peach pies, crack a few pits and cook in the pie with the fruit for flavor.

Do not cut fruit too small, as it loses much of its flavor on account of the large amount of surface exposed. Always mix an acid with an insipid fruit, as currants with huckleberries. In apple pies, allow the natural flavor to predominate when apples are at their best, for there is no gain in wholesomeness or palability in the use of spices. Lay the fruit well up about the edges, and bind the crusts together by wetting with egg white or cold water, and pressing well before putting to bake. When the juices exude in cooking, a little dry flour mixed with the sweetening will prevent it. In using juicy fruits, it is always better to bake the crusts with a paper or linen filling, and cook the filling while the crusts bake, and put together hot as can be handled, but if one prefers to cook the fruit in the pie, the juice can be confined by using a strip of white muslin wet and applied around the edge of the pie before putting it into the oven. Remove the cloth as soon as the pie comes from the oven. Exuding juices may be prevented also by making a little paper funnel, and placing it in a perforation in the crust of the raw pie to allow the steam to escape. To prevent the lower piecrust soaking, paint with egg white, or dust with flour before putting the fruit into it.

Puff Paste.

One pound of butter, one pound of flour, two egg whites. Scald a large bowl, and chill with ice water. Work the butter in the bowl in ice water until soft and waxy. Chop one-eighth of the butter in the flour until fine, then rub with a spoon. Put the egg whites, unbeaten into the flour, and mix with ice water until you have a dough just stiff enough to handle easily without flour. Work this dough until it blisters, then put the remainder of the butter in, in a square piece, and fold the dough over it, same as piecrust. Then roll a little on one side, then as much on the other side, and fold over again like a piecrust, and roll not more than seven times, nor less than five, and let cool between each rolling fifteen or twenty minutes, but not too much, or it will crack and will not puff when baked. Cut with a sharp knife or cutter dipped in hot water to prevent the edges being pressed together. Let cool after cutting out before putting into the oven. Have the oven as hot as you can without burning,—have it hottest on the bottom. Protect the top at first by covering with white paper.

There are different ways of mixing. The flour, salt, and ice water may be put together, and pounded and kneaded until smooth and elastic before putting in the butter. The usual way is to put one-third or one-fourth of the butter with the ice water, flour and salt, by rubbing into the flour, then fold the rest of the butter in the dough.

Baking Powder Piecrust.

Baking powder, one-fourth teaspoonful; salt, one-eighth teaspoonful; fat, one-third cup; flour, one and one-quarter cups. Mix dry ingredients with the flour. Rub fat into flour. Mix with one-half cup (scant) of cold water. Cut in two parts, and roll each piece separately.

Flaky Piecrust—For Home Work.

Use six ounces of butter (three-fourths of a cup), and one-half pound of flour (two cups) for one pie with two

crusts, and one pie with a single crust. Have all the ingredients and utensils to be used cold as possible. Set them on ice for a while before preparing the pastry, then place the butter and flour in chopping bowl, and chop until the butter is in pieces about the size of a pea. Pour in ice water a little at a time, using only enough to make the dough stick together. Mix with a fork by pulling particles aside as moistened, and add water to dry flour each time, put on the molding board, roll three times, folding each time with a knife, and turning half round each time.

For simple flaky piecrust, use two cups of flour and one-half cup of butter (in piecrust one-half butter and one-half lard may be used if desired).

Flaky Piecrust—For Class Work.

Two level tablespoonfuls of fat, one-half cup of flour, two level tablespoonfuls of ice water, one saltspoonful of salt. Put together as above.

Custard Pie—For Class Work.

Put one tablespoonful of beaten egg in a bowl, add to this the sugar (one tablespoonful), and the flavoring. Pour the milk (one cup) into it, and stir well. Turn the custard into the crust and bake in a moderate oven, until a knife, if thrust into the center of the pie, comes out clean.

Custard Pie—Home Work.

Three eggs, three tablespoonfuls of sugar, one-fourth teaspoonful of salt, three and a half cups of sweet milk. Flavor with nutmeg. Put together and bake same as above.

Pastry—For One Pie Crust.

One-half cup of flour, two level tablespoonfuls of fat, two tablespoonfuls cold water, one-fourth teaspoonful of salt. Rub fat and flour together with a fork or a limber

knife. Add the water a little at a time, pulling the dough to one side as the flour is wet, and adding water to dry flour each time. Use as little water as will make the dough adhere.

Pastry—With Baking Powder.

Make same as above, except sift one-fourth teaspoonful baking powder with the flour before rubbing fat into it.

Pastry—For Class Work.

One-fourth cup of flour, one saltspoonful of baking powder, one-eighth teaspoonful salt; one level tablespoonful fat (if baking powder is used leave out half the fat), one tablespoonful cold water.

Cream Pie—Hot-Water Crust.

One-half cup of flour, one tablespoonful of lard, one tablespoonful of butter, two tablespoonfuls of boiling water. Rub fat and flour together, and mix with boiling water.

Filling for Cream Pie.

One cup of milk, one level tablespoonful of sugar, one small egg yolk, four tablespoonfuls of flour, two tablespoonfuls of butter. Heat butter and flour together. After they are well mixed, pour on the milk, and cook. Pour this over the beaten egg yolk, sweeten, and flavor. Pour this into the crust, which is baked. Cover the top with a meringue made from the egg white.

Apple Custard Pie.

Make a crust same as for custard pie. For the filling cook dried apples as for sauce, letting nearly all of the water cook out. Put the apples through a colander or sieve, add six tablespoonfuls of sugar and one egg, beat all well together, and add a few drops of lemon extract, or a little cinnamon, and a dust of salt. Then stir in one

cup of sweet milk. Pour into the crust and bake same as custard pie. When done, cover with a meringue, or let cool, and cover the top with grated cheese.

Dried Apple Pie.

Prepare the apples, wash, and soak overnight. Make the piecrust, sweeten the apples, and put them in, and bake. Cook slowly until the apples are done.

One-Crust Apple Pie.

Pare, core and cut the apples into eighths. Put the apples in layers, having first buttered the bottom and sides of the granite tin in which it is to be baked. Sprinkle sugar enough to sweeten the apples, then place the crust, and bake.

Pan Dowdy.

Make same as one-crust apple pie, except sweeten with molasses.

Gooseberry Pie.

Remove the stems and the blossom ends from the berries. Wash fruit. Mix two tablespoonfuls of flour with the sweetening for each pie. Use half as much sugar as berries, if the berries are young; otherwise more. Stir the sugar and flour into the berries, fill the pie, and bake. Wet the lower crust along the top with cold water, and press the upper crust well down, or use one of the devices given in the article on pastry.

Peach Pie.

Make a lower crust, fill with peanut shells or crushed white paper. Put the upper crust on, and bake. Cook the peaches until soft, then add the sugar, with two level tablespoonfuls of flour, and cook until it thickens. Pour into the crust while both it and the peaches are hot. Let get cold, and serve with whipped cream.

Lemon Pie (Makes Two Pies).

Juice and grated rind of two large lemons. One and one-half cups of sugar, one scant tablespoonful butter, three cups boiling water. With the sugar mix six level tablespoonfuls of cornstarch; put the water, lemon rind, and salt with these and boil until stiff and clear. Pour this over the beaten egg yolk, stirring constantly and pouring slowly. Return to the fire and cook the egg, stir in the lemon juice and turn into the crust. Use the whites of the eggs for a meringue.

Lemon Pie—Class Rule.

Juice and grated rind of one-half a large lemon, one-fourth of a cup plus two tablespoonfuls of sugar, one teaspoonful of butter, three-quarters of a cup of boiling water. This makes a pie about one-third the usual size. Make and put together the same as directed in home rule.

To Make Meringue for Pie.

In making a meringue use two tablespoonfuls of sugar to one egg white. Put part of the sugar on the egg white before beating at all, beat this just enough to thoroughly incorporate the two, then add the remainder of the sugar, and beat until, when the beater is lifted through the beaten white, it will stand in points. Spread on the pie, and brown a golden brown in a moderate oven. A wire spoon beater is best for beating egg whites.

Huckleberry Pie.

Mix with the huckleberries about one-third as many currants or red raspberries. Sprinkle over them about two-thirds of a cup of sugar, with which has been mixed two heaping dessertspoonfuls of flour. Finish as any two-crusted pie.

Cherry Pie.

Line the pie tin with piecrust. Wash and stone the cherries, fill the crust, and sprinkle over them one cup of

sugar, with which has been mixed two level tablespoonfuls of flour. Put on the top crust, and bake, being sure that the edges are well pressed together. The cloth bands spoken of in the article on pastry may be needed.

Rhubarb Pie.

Wash the rhubarb, peel, if necessary, and cut into inch lengths. Pour boiling water over it, and let stand a few minutes, then drain and cook in as little water as possible, and fill a previously baked crust as described for linen pie; or mix two tablespoonfuls of flour with the sugar, and stir the mixture into the rhubarb raw, then fill the pie and bake. Use the cloth or paper tube described on page 357 with this pie.

Linen Pie.

In a linen pie, the crust is made, and the pie filled with tissue paper, and the crusts baked thus, then the top crust is lifted off and the filling put into the pie, and the crust replaced. The object is to avoid having a soggy lower crust. It is well to flour the lower crust or brush over with egg white to prevent soaking when the fruit is cooked in the pie.

Apple Pie.

Make a crust the same as for any pie, fill with tart apples, pared, cored and cut in thick slices, sprinkle with sugar and dot with bits of butter if desired. Put on the top crust, press the edges firmly together, and bake until the fruit is done.

Potato Pie No. 1.

Over one-half pint of grated raw potatoes pour one quart of boiling milk, and let cook in double boiler until the potato is done. Let cool, and add three well-beaten eggs. Sweeten to taste, and flavor with nutmeg. Bake same as custard pies, and use fresh.

Potato Pie No. 2.

One cup sweet milk, two tablespoonfuls of flour, two tablespoonfuls of butter, one small egg, one-half cup of mashed potato, one-quarter teaspoonful of salt, one-eighth teaspoonful of grated nutmeg, one teaspoonful of fruit vinegar. Cook the milk, butter and flour together until like thick cream. Add the vinegar and salt, pour boiling hot over the beaten egg yolk, and mix well. Add the mashed potato, and beat until smooth and thoroughly mixed. Return to the fire, and let boil, and fold in the egg white, and pour the mixture into a previously baked crust, same as in making a lemon pie.

Squash Pie.

Crust: One and one-fourth cups of flour, one-half cup (scant) of fat,—lard or butter,—one-fourth teaspoonful of salt. Just enough ice water to make the mixture stick together. Use extra flour for kneading. One-half tablespoonful of baking powder may be used, then use only one-third cup (scant) of fat.

Filling: One and one-half cups of stewed sifted squash (cook until dry), one cup of boiling milk, one-fourth cup of granulated sugar, one-fourth cup of brown sugar, one-half teaspoonful of salt, one-fourth teaspoonful each cinnamon, cloves and ginger, one egg. Beat egg with the squash, add the sugar, which has had the spices mixed with it, and, last, the milk, stirring as it is added, fill the crust, and bake in a slow oven. Cover the top with grated cheese or a meringue.

Squash Pie—Class Rule.

One-half cup of squash, cooked dry and made smooth, one-third cup of milk, one tablespoonful of sugar, one tablespoonful of sorghum molasses, one and one-half tablespoonfuls of egg, one-sixth teaspoonful of spices. This makes a pie about one-third the usual size. Make and bake same as above.

Baked Apple Dumplings.

Make a plain crust same as for pie. Core and pare tart apples and cut into quarters, then halve each quarter at right angles to its length. Roll the dough as for pies, and cut into pieces large enough to wrap the halves in. Put the sugared apples in, fold the edges together, and pinch to make them adhere. Place in the pan open side up, and bake until the apples are tender. Serve with sugar and cream, or with a made sauce, such as caramel cream.

Fritter Batter for Fruit or Fish.

One-fourth teaspoonful of salt, one egg yolk, four tablespoonfuls of milk or water and two teaspoonfuls of olive oil or clarified butter, one-half cup of flour. If fruit is used put sugar in batter. Beat the egg well, and add the oil slowly, then add the milk and flour alternately —the salt may be put in the flour. Beat the white of the egg very stiff, and fold in last.

When you wish to use the batter for both fruit and clam fritters, divide the mixture into two parts. To part one, add a scant one-fourth teaspoonful of lemon juice, one round tablespoonful of minced clam, or dip clams until coated, and fry. When clams are to be dipped in the fritter batter, clam broth may be used instead of milk. Use part two for the fruit.

Rissoles.

Use any kind of pastry dough, and make and bake same as a turnover, or seal edges well and fry in deep fat.

Mince Meat for Pie.

Two pounds of lean beef, one pound of beef suet, one and one-half pounds of sugar, one cup sorghum molasses, one quart of sweet cider, fruit juice or weak vinegar, two pounds of raisins, two pounds of currants, two lemons (juice and grated rinds), two tablespoonfuls of ground cinnamon, one-half tablespoonful of ground cloves, one-half tablespoonful of ground allspice, four pounds of tart

apples, one pound of citron. Boil the beef and suet together in as little water as is practicable, until tender. Drain, let cool, free from bone, etc., and chop. Clean currants and raisins, pare apples, and cut citron fine. Chop apples and raisins. Mix spices and sugar together, and put into the liquid. Add the dried fruit and apples, and bring to the boiling point, then add the chopped meat, and when it again boils set aside to cool. It makes better pies if allowed to stand for a few days until the flavors are thoroughly blended.

Cheese Straws No. 1.

Roll out scraps of pie crust thin, as for pies, and cut with a sharp knife into strips three-eighths of an inch wide. Lay in a pan so that there will be a fourth inch space between, cover thickly with grated cheese, sprinkle with salt and pepper and bake in a hot oven. When done remove at once from the pan, and cut apart. Serve with salads.

Cheese Straws No. 2.

Roll out scraps of pie dough thin, as for pies. Cover one-half the surface thickly with American cheese (grated), dust with salt and pepper, fold the other half over this, roll thin again, cut into strips, and bake as in No. 1.

FROZEN DISHES.

There are various mixtures under the general head of "ice creams." There is one which is made of pure cream or of cream and milk, with sweetening and flavoring, and another which has a custard as a basis. This custard may be made of milk and eggs, or these two, plus cornstarch or arrowroot. Arrowroot and the whites of egg are the most satisfactory of anything of this kind if the cream is to be tinted, as it is clearer. A pure cream ice cream will be smoother if the cream is scalded and the sugar added to the hot cream. Parfaits, mousses, bis-

ques, and other things of a porous character are classified under this head, but differ in the manner of freezing. The others are all frozen in the same way.

Directions for Freezing Ice Creams.

See that the freezer is in good condition, and that all parts are at hand. The more paddles a freezer has, the finer the cream. Scald the tin can, and see that it is in the socket in the bottom. Put the ice into a coarse bag, and pound it fine. The cream is more velvety with fine than with coarser ice. Salt of medium coarseness is best because it can be packed more closely. Put the can in place, pour the prepared cream into it, put in the flange, cover, and put on the crank. See that it turns easily, and then proceed to pack with salt and ice. First put in a layer of ice, then a layer of salt, using about three times as much ice as salt. May mix them in the pan before packing around the can. When ready to freeze, remove the cover carefully, and put the egg whites into the cream.

The freezer tub should have a hole near the top only, and this should be left open to prevent the salt water running into the cream can. When the cream is frozen, carefully remove the cover to prevent bits of ice entering the can, take out the flange, stir the cream down, and replace the cover, fit a cork tightly in the hole at the top, put a cup over this, pound the ice down at the sides, and cover the top with ice.

If the cream is to be molded, rinse the mold with cold water, and as soon as the flange is removed, and the cream well beaten, fill the molds, pressing down to make sure that the patterns are filled, and the cream solid. Moisten a piece of thin, firm paper, put it over, and fit the cover tightly. Bind a buttered cloth firmly around the opening to keep the salt water out, then imbed the mold in ice and salt. Individual molds need to be firmer than large molds. It is well to use a little gelatine in creams for molding if the day is very warm. Pack individual molds

in a pail, pack the pail, and use a larger proportion of salt. When a cream and an ice are molded together, put the ice above, as it is apt to melt more readily than the cream if it touches the plate on which it is placed. To dip the cream out when serving, put a spoon in hot water, and cut out a cone.

Plain Ice Cream.

One quart of cream of medium thickness. Heat the cream scalding hot, and dissolve one cup of sugar in it. When cold, add two teaspoonfuls of vanilla and the same of lemon extract. Put in egg whites as directed above. Cream should not be frozen too rapidly, as it is apt to be coarse. Twenty to twenty-five minutes is a good length of time for three quarts or less.

Caramel Ice Cream.

Make same as plain ice cream, except sweeten with a thick caramel syrup, and use twice as much as would be needed of a plain syrup of sugar and water boiled together because the sugar, when caramelized, is less sweet, or use enough caramel for flavor and color, and finish sweetening with plain sugar.

Chocolate Ice Cream No. 1.

Prepare the cream and sweeten as for plain ice cream. Put two tablespoonfuls of cocoa in a saucepan, and add enough cold water to make it a thin batter. Stir over the fire until cooked, then stir into the hot cream. When cold, flavor with one tablespoonful of extract of vanilla, put in the egg white after packing, and just before beginning to turn, same as before.

Chocolate Ice Cream No. 2.

Milk, one pint; eggs, two, or one large one; flour, two tablespoonfuls; sugar, one cup; cream, one quart; vanilla, one tablespoonful. If you make the chocolate without cream, use whole milk. Chocolate, two ounces of Baker's. Scrape chocolate and melt with equal quantity of sugar and two tablespoonfuls of water. Cook milk, flour and

sugar together, and pour over the eggs. Cool, flavor, and freeze.

Glace Cream.

This is made by adding to plain ice cream, when nearly frozen, the following mixture: Boil together one cup of sugar, one cup of water, and one-eighth of a teaspoonful of cream of tartar until it will form a soft ball when dropped in cold water. Pour this boiling hot, in a small stream over the well-beaten whites of three eggs, and beat until it is cool. Flavor same as the ice cream. Open the freezer, put the mixture in, and turn the freezer until it is thoroughly mixed. A bomb glace is a glace cream and an ice of some fruit molded in a spherical form. The fruit usually is on the outside, completely covering the cream.

A biscuit glace is a glace cream molded in individual forms. These biscuits are usually composed of two kinds of cream, or of an ice and a cream packed in the small paper cases in which they are served, and then put into a freezing can until very hard.

Ice Cream—Custard Basis.

Make a boiled custard, using two large eggs to a pint of milk. Beat the eggs, have the milk boiling hot, and pour a little at a time on the eggs, stirring well. When ready, put the whole in the double boiler, add the sugar, and cook until the custard coats the spoon. When cool, use two pints of cream and one pint of the custard, flavor, and freeze as before.

Any variety of ice cream desired can be made from this by varying the flavoring, adding chopped nuts, etc. Mousses, etc., are frozen by packing the molds in ice, and leaving untouched for several hours.

Coffee Parfait.

Parfaits are frozen like ices. One cup of double cream, one-third cup of sugar, one-fourth cup of black coffee. Mix the coffee and the cream, whip, skim off the froth, mold, and pack.

Strawberry Mousse.

Have double cream very cold, in an earthen bowl, beat and drain. The bowl, cream, and whip should be cold for beating cream. When not cold, the cream will make butter. Mix with the cream enough strawberry syrup to flavor it, put into a mold, pack in salt and ice, and let stand several hours. The syrup both sweetens and flavors the cream.

Tutti Frutti Ice Cream.

This cream is a plain ice cream, with French candied fruits cut fine and added when nearly frozen. Fruits must not be added long enough before serving to freeze hard, as the object desired is to simply chill them well.

Fruit Ice Cream.

Use either a pure cream or a custard basis. Sweeten as before, but do not flavor. When about half frozen, remove the cover, and add the fruit, finely pulped and sweetened to taste. Peaches should be cooked, unless very soft, and put through a puree sieve. Strawberries and raspberries should be put through a sieve to remove the seeds, Bananas, if sliced fine, can be used as they are. If the fruit is in pieces, care must be taken to not freeze the fruit hard.

Ice Cream Flavored with Fruit Syrups.

Strawberry syrup, raspberry syrup, etc., may be easily canned while we have fruit, and they make the most delicious creams when fresh fruit cannot be had. Such fruit syrups should be boiled until thick, and sweetened, as a thin fruit juice will make a watery cream.

Hokey Pokey Ice Cream.

This has condensed milk as its basis, and requires a little higher flavor than an ordinary ice cream, otherwise it is made in the same way as plain cream.

Brown Bread Ice Cream.

Brown bread ice cream, macaroon ice cream, etc., are simply plain ice cream with a portion of fine crumbs stirred in just at the last.

Pistachio Ice Cream.

Make the same as directed for plain ice cream, except leave out the lemon and vanilla extract, and put in extract of pistachio, and tint with spinach coloring, or use the pounded pistachio nuts, if you can get them.

Frozen Fig Pudding.

Milk, one quart; eggs, four; sugar, one cup; gelatine, one tablespoonful (unphosphated); vanilla extract, one tablespoonful; figs, one-half pound; walnuts, one-half pound. Soak the gelatine in cold water to cover. Put the gelatine in a bowl, and pour one-half cup of hot milk over it. Make a custard of the sugar, the eggs and the remainder of the milk. Pour the hot custard over the gelatine, and stir until dissolved. Let cool, and freeze. When nearly frozen, add the figs and nuts, cut fine. Let stand packed one hour before serving.

Water Ices.

These are usually made of fruit juices, sugar, and water. Sometimes white of egg is added. Sorbets, granites, and punches are properly served in the midst of a dinner, immediately after a roast. Sherbets are usually served at the end of a dinner, but are sometimes served instead of a punch. Sorbets and punches are simply iced or partially frozen. They should have smooth, even, cream-like consistency. Sherbets, when frozen in an ice-cream freezer with many paddles, especially when white of egg is used in their composition, are very smooth and creamy. Some object to this because they do not mold well. When a syrup is made with the water and sugar before adding to the fruit juice, the sherbet is finer grained than when the sugar and water are added cold. If the sherbet is to be molded with ice cream, it is better to mix the ingredients cold, and freeze without the flange, scraping from the sides of the can with a wooden spoon, and beating well occasionally. Sherbets are usually served in sherbet cups. Orange sherbet is nice served in orange cups. Granites, as the name indicates, should always be rough and coarse-

grained. They and sherbets should be frozen as firm as any ice cream. Granites are made by packing sweetened fruit juices and water in ice and coarse salt for three or four hours, or more, and stirring little.

Liquors are often used in ices, but they should never enter into any dish except in cases of severe illness, and then only by a physician's order.

Pineapple Sorbet.

Pare a fresh pineapple, and take out the eyes. Shred the pineapple with a silver fork. Mix with it, in an earthen bowl, two cups of sugar. Set closely covered in a cool place, and when the juice is extracted as much as possible, put into a jelly bag, and squeeze. Measure the juice and pour an equal amount of boiling water on the squeezed pulp in a bowl; stir well, put into the bag, and squeeze, and add this liquid to the juice. Put into a saucepan, and let boil a few minutes. Remove, and when cold add the juice of two oranges and one lemon. Put into the freezer, and turn until a mushy ice is formed, and serve. In consistency it is like a half-frozen sherbet. Serve in glass cups.

Pineapple Sherbet.

One pint of water and one pint of sugar, cooked together into a syrup, one can of pineapple unsweetened, or one fresh pineapple shredded, juice of two lemons, one egg white, beaten stiff. Mix the syrup, pineapple, and lemon juice, put into the freezer, freeze until it begins to get white, and looks like snow and water mixed together, then add the beaten egg white, and freeze until it looks snow white and creamy. It should swell one-third or more.

Banana Sherbet.

Juice of three lemons (three-fourths cup), one and one-half cups of sugar, two and one-fourth cups of water, nine bananas, thinly sliced, three egg whites, unbeaten. Mix all together, and freeze.

Milk Sherbet.

One level tablespoonful of gelatine soaked in one-fourth of a cup of cold water. One pint of sugar, one pint of milk, juice of five lemons. Heat the milk, and dissolve the sugar in it, then pour over the soaked gelatine, and stir until dissolved. Mix all ingredients together and freeze at once.

Currant Sherbet.

One pint of currant juice. Make a heavy syrup of one pint of water and one pint of sugar. When thick, stir it into the currant juice, and add enough water to make a quart. Put the liquid into the freezer, drop in the white of one egg, and freeze same as ice cream. Raspberry and currant together make a fine sherbet. Use two-thirds currant juice and one-third red raspberry juice, and sweeten to taste.

Panama Sherbet.

One cup of orange juice, one pint of apple juice, from stewed apples, one cup sugar, one teaspoonful of gelatine, one tablespoonful of cold water. Soak the gelatine in the water. Put the sugar into the apple juice, and boil a very little. Then pour over the gelatine and stir until dissolved. When cold, put all together, and freeze as directed on page 367.

Lemon Sherbet.

Juice of four lemons (1 cup), rind of one lemon, grated, juice of one orange, one pint of water, one pint of sugar. Cook the sugar with the orange peel and water until the liquid is flavored, strain out the peel, and proceed as above.

Orange Sherbet.

Two cups of orange juice, three tablespoons of lemon juice, one cup of granulated sugar, one and one-half cups of water; may use equal parts of fruit juice and water if desired. Cook the grated rind of one lemon, the sugar and water together five minutes, add the fruit juice, put

into the freezer, add a dust of salt and the white of one egg and freeze.

Ginger Sherbet.

Two cups of orange juice, three tablespoonfuls lemon juice, one cup granulated sugar, one cup of water. Flavor with ginger. Equal parts of juice and water may be used. Cook the sugar and water together five minutes, then add the other ingredients, and freeze as any sherbet.

Lemon Punch.

Juice of six large lemons and one orange. Grated rind of one lemon. Measure the fruit juice, and add nearly an equal amount of water and one pint of sugar. Put over the fire and let boil ten minutes, then set aside to cool; when cold, pack in freezer. Put over the fire the grated lemon rind, one cup of water, and one-half a cup of sugar. Boil to the soft-balling stage, then strain, and pour boiling hot in a small stream over the beaten whites of three eggs, pouring slowly, and beating as in making boiled icing. Continue the beating until the mixture is nearly cold. Freeze the liquid in the freezer to the consistency of a half-frozen ice, put the meringue in, and turn the freezer until thoroughly mixed. Serve in cups, same as sherbet.

W. C. T. U. Punch.

Three teaspoonfuls of Ceylon tea, steeped, cooled and strained, one quart boiling water, one block ice five inches square, juice of four lemons, juice of one orange, one and one-half cups of sugar, one quart of Apollinaris water, one box of strawberries. Put the ice in the punch bowl, mix all the ingredients, and pour on the ice. Let stand an hour, and serve.

Macedoine Punch.

One pint of hot water, pour over the grated yellow rind of one lemon and one pound of sugar and boil five minutes, strain and while still hot slice into it two me-

dium-sized bananas or three large peaches (canned peaches may be used and put in when cold). Add a cup of grated pineapple (either fresh or canned) and one pint of canned cherries. When ready to serve add the juice of seven lemons and two oranges. Put a large block of ice in the center of the punch bowl, add two quarts of water and let stand two hours in a cool place. At the last moment add a few fine strawberries. This will serve twenty-five or thirty people.

Strawberry Granite.

Mash the strawberries, and squeeze the juice out through a cloth. Mix water with the pulp, and squeeze again. Use equal amounts of the pure juice and the liquid from washing the pulp. Stir in sugar until it is a little sweeter than you would want to drink, as all frozen dishes taste less sweet after than before freezing. Add the juice of one lemon. Pour into the freezer, let stand several hours, loosening from the sides and stirring often enough to prevent freezing in large lumps, but do not beat enough to make smooth.

Frozen Rice Pudding.

One-half cup of rice, six cups of whole milk, three-fourths of a cup of sugar. Wash the rice, put it to cook in the milk, and set it on the back of the range, where it will cook slowly until the rice is perfectly soft. Then strain through a sieve. Add the sugar, and stir well. Then add one-fourth as much cream as there is of the strained rice, flavor, and finish as the plain ice cream. The milk should be evaporated to the consistency of cream when the rice is strained.

FRUITS.

As to whether raw fruits are better than cooked, there is a diversity of opinion. Much depends upon the individual. When one can take raw fruit without disturbing any of

References: Boston Cook Book—Lincoln—pp. 361, 362; Parloa's Kitchen Companion, pp. 674-689; Buckeye Cook Book, pp. 407, 408.

the digestive processes, it is well to do so. The fruit acids have medicinal properties, and aid in toning the system. It is evident, also, that when fruit is eaten raw, none of its food value is lost, as in cooking.

Fruits which are eaten raw should be mature, free from

blemish, and perfectly ripe. No fruit or vegetable which has begun to decay should be eaten raw. Such food is not only unsanitary, but is usually lacking in flavor.

All fruit which is to be eaten raw should be washed before serving. The fact is that most fruit has passed through several hands before reaching the table.

Strawberries and Blackberries.

Strawberries, blackberries, and all soft, small fruits should be washed by putting into a colander, and moving it up and down in clear water, thus removing all sand and dust. Never wash them long before serving, because they soften quickly when wet. Wash strawberries before hulling.

To Prepare Oranges and Lemons.

Oranges and lemons should be scrubbed with a vegetable brush. Apples and pears will have a better gloss if rubbed well with a dry cloth. Peaches should merely have the fuzz rubbed off carefully. To prepare grapes for the table, remove all imperfect ones with a sharp knife, then wash each bunch, by moving about in water. Cherries and strawberries, when large and nice, may be served on the stems as picked, each guest being supplied with a small dish of powdered sugar. In arranging fruits for the table, it is frequently well to serve different kinds on the same dish, and so combine colors and varieties as to give a pleasing effect. A few green leaves interspersed with the fruit beautifies the dish. Raw fruits should always be served cold, and for the sake of variety, they are sometimes frozen before serving.

To Prepare Pineapple for the Table.

Pare, and with a sharp knife remove the eyes. Shred fine with a silver fork. Put a layer of pineapple in a serving dish, and sprinkle with sugar, continue thus until the dish is filled. Cover closely, and keep cool until serving time.

To Prepare Watermelon for the Table.

Wash the outside clean, and put in the cellar or in cold water until thoroughly cold. Then cut in slices, or in any of the fancy shapes, before putting on the table. Serve on a plate with a fork.

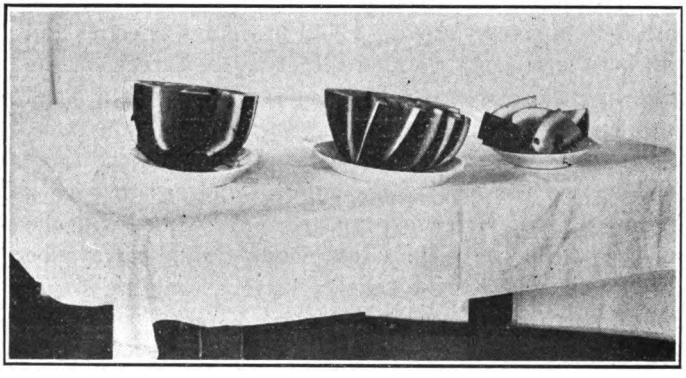
It is better to bring melons from the garden early in the morning, when possible, as they are then cool, and can be easily kept so.

To Prepare Cantaloupes for the Table.

See that they are cold, clean, and wiped dry. If small, halve them, remove the seeds, and serve a whole melon to each person. They may be served with a piece of ice in each half. If the melons are large, cut in eighths or fourths, and serve a piece to each person.

To Cut Melons in Fancy Shapes.

Wipe the outside of the melon until perfectly clean. Cut a thin slice off from each end of the melon, then cut in half, putting on the plate with the blossom or stem end down. With a large, sharp knife cut into wedge-



Some Ways in Which Watermelons may be cut for Serving.

shaped pieces which measure about two inches at the top on the rind. Do not remove the pieces as they are cut, but allow them to lie in the natural position when carried to the table. Or cut wedge-shaped pieces by cutting one piece two inches at the top, and running to a point at the other end the next piece will be pointed at the top, and large at the bottom. Now remove the pieces which are wide at the top, and leave the others in place on the platter, the effect is very pleasing.

Another way is to cut the melons in half, lengthwise, then cut off a thin slice of the rind, so that the melon will

rest firmly on the platter. With a large spoon, serve by the spoonful in cone-shaped pieces from the boat-shaped rind. The platter may be covered with leaves, green or of autumn tints, and the melon placed on them.

Frozen Fruits.

Fruits, although termed "frozen fruits," are not frozen, —they are merely thoroughly chilled. Berries and fruits of almost all kinds are sweetened and packed about one hour before ready for use. Small canteloupes may be cut in halves, salted a little, and packed in the freezer. Canteloupes and other melons may be taken out in uniform pieces, and a little salt sprinkled on those which need it before packing them in the freezer. Bananas are peeled and sprinkled with sugar and lemon juice. Tomatoes are best chilled whole, and sliced when served.

Chilled Beverages.

Tea, coffee, egg-nog, meat broths, etc., should be chilled by having the ice around, and not in, them.

Frozen Raspberries and Currants.

Look over three cups of raspberries, wash them, place in a bowl, and stir into them one cup of red currants, and one and one-fourth cups of sugar, and mash. Let stand in a cool place one hour, then add to them one cup of water, and freeze same as ice cream.

Frozen Blackberries.

Look over one quart of nice blackberries, wash, mash, and stir into them one cup of sugar. Let stand one hour, then add one cup of water and the juice of one lemon, and and freeze as any ice.

Frozen Strawberries.

Pick over and wash one quart of strawberries. Mash, and add two cups of sugar. Let stand an hour or two, then add the juice of one-half a lemon, and one cup of

water. Stir well together, break in the white of one egg, freeze same as any ice.

Frozen Apples.

Prepare, cook, and sweeten to taste tart apples (cook in a little water or steam), mash through a colander, and, when ready to freeze, add for every four apples (one pint of pulp) used, the juice of an orange and one-half cup of water. Freeze as other ices.

Peaches, Apricots and Pears.

These may be frozen in a similar way, but none of them are so satisfactory as chilled raw fruits. To prepare chilled peaches, pare and pit one quart of perfectly ripe freestone peaches, pack a layer of peaches in the freezer, and add sugar to sweeten, then put in another layer of peaches, more sugar, and so on until there is a sufficient amount. Pack in ice and salt, and let stand two or three hours, that they may become thoroughly chilled, but not frozen hard. Serve with whipped cream. Any kind of soft, raw fruit may be chilled the same as the peaches.

Frozen Watermelon.

Use only the red part of the melon, and remove the seeds. Cut in small strips about two inches long, pack in the freezer, and pack the freezer-can in ice and salt, using an excess of salt, and let stand two or three hours, until near freezing, but not hard. Serve piled prettily in a dish.

Frozen Cantaloupe.

Prepare the cantaloupe by paring and removing the seeds, and cutting into long narrow strips, and chill in same manner as directed for watermelon.

NUTS.*

Nuts may be cracked before serving, or served whole, as one wishes. When served whole, nuts must be of

*U. S. Dept. Agri., Office of Exp. Stations Bulletin No. 107.

such varieties as will readily yield to the pressure of the silver nut cracker. Salt should always be at hand when nuts are served. Almonds may be served shelled, unshelled, or blanched. They are neither so fine in appearance or flavor when blanched as when served in the shell. Raisins in handsome clusters may be interspersed among the nuts. Salted almonds are served alone on small, handsome, round or oval-shaped dishes. French chestnuts are usually roasted, and served in the shell.

To Roast Chestnuts.

Cover the chestnuts with boiling water, and cook ten minutes. Drain, spread them in a dripping pan, and bake in the oven ten minutes. Serve hot. Chestnuts are sometimes slitted with a knife before putting to cook, to facilitate opening, but they lose much flavor when boiled thus, and should be steamed, if possible.

To Blanch Almonds.

Put shelled almonds in a bowl, and pour boiling water over them. When the skins slip, pour the water off, and skin the almonds.

Salted Peanuts.

In a pan, place shelled peanuts sufficient to cover the bottom,—about a pint of them; pour on one tablespoonful of olive oil, or enough, by shaking them about, to grease them well, then sprinkle well with salt, and place in a hot oven and brown, shaking occasionally.

Salted Almonds.

Jordan almonds are preferable, and it is better to buy them shelled than unshelled. Put into a small pan one teaspoonful of olive oil, and one tablespoonful of salt, then add the almonds, and shake about until coated with oil. If butter is used, take twice the quantity, and get the almonds hot before adding the butter. To this quantity of

fat use one cup of almonds. Put the prepared almonds in an oven same heat as for bread, and stir and shake frequently to prevent burning. Shake fine salt over them again as they come from the oven.

References: Common Sense in the Household—Harland—pp. 442-445; Parloa's Kitchen Companion, pp. 71, 72, 694-699; Boston Cook Book—Lincoln—pp. 391, 392; Food Products of the World—Green—pp. 217-232; Elements of Cookery—Williams & Fisher—pp. 226-231; U. S. Dept. Agr., Farmers' Bulletin No. 122, pp. 18-22.

CHAPTER XXVIII.

DIETARIES AND BILLS OF FARE.*

Experiments in the feeding of domestic animals have been made in experiment stations and elsewhere during a considerable length of time, and the results have been carefully studied by stock owners. Similar experiments have been made to ascertain the value of different foods and combinations of foods for human beings. These trials have been carried on during a shorter time, and their results have probably been less widely disseminated. Investigations along these two lines follow the same general principles. In some cases the results of investigations concerning the problems relating to nutrition in a food for man can be utilized in stock feeding. The cereals, for example, are used as food for both man and the lower animals, and when their chemical composition is known, it serves in both cases. Potatoes, when not too expensive, are similarly used. Human-food investigations have been carried on in the United States to some extent during the last twelve or fourteen years, but it is only since 1894 that an annual appropriation has been made for the study of the food and nutrition of man. One branch of this food investigation is known as "study of dietaries." The object of these investigations is to ascertain the kinds and amounts of food consumed by people of different occupation, age, sex, and environment. The investigators ascertain what relation exists between the cost and the food value of the different food materials furnished, by finding the amount of available nutrients in each. They also ascertain how much of the food purchased is eaten, and how much is wasted, either on the table or in the kitchen. The periods of investigation vary from a week to four weeks, usually.

*A. P. Bryant, Office Exp. Stations.

The time of study is too short, and the cases which have been studied are too few, to warrant accurate statements on many points.

The United States Department of Agriculture, with the aid of the agricultural colleges and experiment stations, has made a few hundred such studies. The entire number made in this country and others aggregate many hundreds. People in the same financial condition, and performing similar work, are not found to differ materially in their food consumption, except in a few cases. The negroes of the south constitute one of the most notable exceptions to the general rule. They consume large quantities of bacon and cornmeal in their diet, which leaves a consequent deficiency of tissue-building material. It is probable that some of the poorer white people in the south are likewise improperly nourished, as they use a similar diet. These dietary studies have impressed on all the very pleasant and encouraging fact that such institutions as that organized by Booker T. Washington at Tuskegee, Alabama, and the one at Hampton, Virginia, have modified to some extent the diet of those who have come under their influence. The following cases show the conditions and illustrate the point in question:

"A family, which may be regarded as typical, living on a plantation in Alabama, and coming in no way under educational influences, had a diet consisting of fresh pork, bacon, butter, milk, cornmeal, and sugar. This diet furnished 52 grams of protein and 3,235 calories of energy per man per day. Not very far away lived another family, two of the members of which had come under the influence of the Tuskegee Institute. The diet here consisted of bacon, eggs, milk, butter, wheat flour, cornmeal, sugar, and molasses. The food per man per day furnished 92 grams of protein and 3,270 calories of energy, or nearly twice as much protein, and the same energy, as was obtained by the preceding family.

"In the outskirts of Tuskegee lived a colored carpenter

who had learned his trade at the institute, and was quite skillful. His diet contained beef round, mutton leg, bacon, lard, chicken, eggs, butter, milk, wheat flour, cornmeal, rolled oats, sugar, molasses, evaporated apples, and strawberries,—a diet as varied as is found in many families in comfortable circumstances in other regions. The food furnished 97 grams of protein and 4,060 calories of energy per man per day. These results show more energy than is usually found in the food consumed by persons at moderate labor. The protein compares quite closely with that found in the diet of the average mechanic's family. The larger amount of energy is due perhaps to the fact that more muscular work was performed."

Comparatively few accurate studies of the dietaries of farmers have been made. The statistics now at hand indicate that the one-sidedness of diet is greater in the south than in the north, but there is too little of the muscle-forming foods consumed, as compared with the heat and energy producing foods in both localities. By comparing the few dietary studies which have been made among farmers with those made among well-to-do people in the cities and towns, it will be seen that the farmer's diet has rather less protein and more energy-giving food than that of his city cousin. There is no good reason for this. The well-to-do farmer spends more money for machinery, repairs, and taxes during the year than the professional man or the mechanic spends for repairs, taxes, or rent in the city. The city man can seldom buy as good fresh fruits and vegetables as the farmer can produce in his garden, while the latter obtains them at much less cost. The farmer can usually raise as good winter vegetables as the man in the city can buy. The farmer gets as much muscle-forming material in a bushel of beans as the man in the city, who frequently pays many times the amount they cost the farmer. Sugar, coffee, cocoa, cereals, and, in some cases, flour, must be bought with cash by both.

But the farmer can produce cream to render the cereals and vegetables palatable, and supply his table with butter at much less cost than can be done by the man in the city or town. Pure skim milk is an excellent muscle former, and while it costs the farmer very little, his city cousin finds the price of pure milk is extreme vigilance, and five cents or more per quart. Fresh poultry and eggs cost the farmer very little, but there are times when it takes more money than the man in town can spare to procure these products in the market. Summing the matter up, it would seem, then, that the trouble is not in the difficulty of obtaining these needed nutrients, but in the fact that country people have given too little thought to the needs of the human body. Vegetables are abundant and always at hand. Cereals, breads, and cured meats give too large an amount of starch and fat for the other nutrients present. This is easily remedied. In summer use milk, eggs, and poultry freely. In winter, slaughter animals on the farm for food, pack the meat, and let it freeze. Farmers thus will have all the best cuts at as low prices as others must pay for the poorer ones. Teach the young children to drink milk instead of tea and coffee, and they will be aided greatly in becoming strong and healthy.

Great care should be exercised in combining foods for the different meals, as the way in which they are sometimes combined has a bad effect upon both health and the purse.

FATS AND OILS USED FOR FOOD.

The fatty portion of our food is derived from both animal and vegetable sources, but far the larger portion is from the animal kingdom. Butter is probably the most pleasant flavored and popular of the animal fats, and commands a high price simply because better flavored and possibly more easily assimilated than most other animal oils. Olive oil holds a place among vegetable oils similar to that occupied by butter among animal fats. Some vegetables contain much oil, and large sums of money and

much time have been expended in endeavoring to prepare them for culinary purposes.

Each fat, whether animal or vegetable, has a flavor peculiar to the animal or vegetable from which it is derived, hence in selecting fats for cooking food, as in frying and sauteing, we must choose fat which will combine harmoniously with the food to be cooked. In frying food in deep fat, the temperature of the fat has much to do with the food retaining its natural flavor, or taking the flavor of the fat in which it is cooking. If the fat is very hot when the food is put in, it does not impart its flavor to the cooking food. The odor of hot fat penetrates all parts of the house, and for this reason it is best to have, if possible, an odorless fat; in any case, we must have a pleasant odored one. It is generally believed that fats of vegetable origin will bear a higher heat without burning than animal oils will. Manufacturers have made great efforts to so deodorize fats as to render them fit for all culinary purposes, such as making cakes, etc., but so far there are few, if any, that are entirely free from their natural flavor. Vegetable oils are usually liquid at all ordinary temperatures, while many animal oils are solid or semi-solid. Lard leaves a coating on the outside of food cooked in it, and mutton or beef tallow cools quickly, leaving a tallowy taste. Beef and lard are better mixed than either alone, for many purposes.

To prevent fats, either animal or vegetable, becoming rancid, they should be kept in a cool place. All bits of fat from the kitchen, except those which are highly flavored, as mutton fat, turkey fat, ham fat, etc., may be mixed and cooked slowly over the fire until they cease to bubble, then strained through cheesecloth, and used in cooking, greasing pans, etc.

U. S. Dept. Agr., Farmers' Bulletin No. 122; pp. 16 and 17. **Food Products of the World—Green**; Johnston's Encyclopedia; U. S. Dept. Agr. Farmer's Bulletin No. 121.

Correct Combinations of Different Food Materials.

In the combination of foods we have striking illustrations of the necessity of exercising both science and art in cookery. By art, we mean the disposition or modification of things by human skill, to answer the purpose intended. In order that the food fulfill its mission in the best manner, it must be palatable, digestible, and of such quantity and quality of nutrients as will meet all the demands of the system. The diet must be sufficiently varied to prevent its becoming distasteful. Each meal must be so arranged as to not tempt those at the table to overeat.

The stockman devotes much time, thought, skill, and labor to ascertaining the best combinations of food for the domestic animals under his care. He first studies the composition of feeding stuffs, both what he calls roughage, as hay, etc., and those which are termed "concentrates," as corn, oats, and such things. Experimenters ascertain the average coefficient of digestibility of these different food nutrients. This accomplished, they find the nutritive ratio, that is, the ratio which exists between the amount of digestible protein in a given feeding stuff, and the amount of digestible carbohydrates and ether extract which it contains. While the chemist and physiologist were ascertaining these things by analytical work and digestion trials, the stockman has been conducting feeding trials to determine how much protein, carbohydrates, etc., are required to properly nurture farm animals under various conditions.

We, who are interested in the best rations for human beings, must master all these questions, and more than these, with human foods. Such things as the difference in the digestive apparatus of different persons, the effect of exercise and of rest, the consequence of the different modes of preparation of food, the effect of flavoring materials and beverages taken with our meals, all complicate the problem very much. There is still another point of difference. The ox will eat his portion of hay day after

day in contentment and happiness. When the ox has no labor to perform, the stockman needs to give him no further attention than to furnish him a maintenance ration. It is not so with any specimen of the genus homo yet discovered. Even when he has need of no further food than the amount necessary to enable the heart to force the blood currents through the body, and give the digestive and assimilative organs power to do their work, if he only sits and breathes, he craves and needs, and perhaps demands, a variety of food.

Those who carry on digestive experiments on human beings say that they find it practically impossible, often, to carry on such an experiment longer than two days, because a single food, no matter how palatable at first, becomes so repugnant to the subject. Dr. Livingston, the African explorer, says: "Experience proves that the Europeans have greater endurance than the hardiest of the meat-eating Africans." Another argument in favor of varied diet. It is claimed that too great sameness, long continued, leads to an impairment of the digestive organs. All this evidence leads to the belief that the desire for variety of food is based upon physiological grounds.

For our present purpose, general principles applicable to all classes of people will be considered. Those questions which each person must settle with his own stomach must be considered and studied by each woman who has the special cases to deal with. Few courses in a meal are far preferable to many courses for several reasons. Such a meal affords sufficient variety to meet the idiosyncracies of different members of the family. It gives a sufficient amount of the different kinds of food to meet the demands of the system. It gives an opportunity for greater variety at different meals, and prevents one so soon tiring of any certain kind of food. It also relieves very much the tendency to overeat. Three or four courses are usually quite enough for a family dinner. It is very often well to begin both dinner and lunch with a soup. Whether the

soup contains much or little nutrition should govern, to some extent the remainder of the meal.

In planning a meal, it is necessary not only to decide what food materials will furnish the needed nutrients in right amounts to meet the demands of the different members of the family, but we must see that we do not choose too many foods that are slow of digestion, nor too large a number that digest very easily and quickly. When foods are improperly combined, some portions are not digested and assimilated fully, and as they lie in the digestive tract unused, poisonous products are liable to be produced. "A daily ration consisting of milk, oysters, and rice would contain all the nutrients required by the body, and would be of about the proper bulk required for a ration, but if a laboring man were fed on such a diet for a long time he would experience hunger, because the foods are so easily digested that the digestive organs would not have enough to do. A ration consisting of roast pork, hard tack, bread, beans, skim milk, cheese, and olives would be exceedingly slow of digestion. This ration would contain all the nutrients required by the body, but discomfort would be experienced by many if they attempted to digest such a ration."*

The way in which improper combinations of food affect the cost of the nutrients is illustrated in the following:

"Dietary studies were carried on in the families of a teacher and of a tinner living in Lafayette, Ind., during the spring of 1895. An examination of the details of the two studies shows that the teacher's family obtained per man per day 75 grams of protein and 1,425 calories of energy at a cost of twelve cents; the tinner, 62 grams of protein and 1,640 calories of energy at a cost of thirteen cents. In other words, the actual nutritive value of the diet was not notably different in the two cases. The proportion of beef, veal, eggs, etc., in the two diets, was, however, quite different. The teacher's family used large

*Snyder.

amounts of beef round, shoulder, and some loin steaks, which were purchased at low prices. The tinner's family used rather less beef, but the cuts that were used were, on the whole, more expensive. The teacher's family used more veal, which was relatively costly, less eggs, more than twice as much milk, and less butter than the tinner's family. On the whole, the former got a little more protein and a little less energy than the latter in the animal foods purchased.

"However, the great difference in the two dietaries lies in the kind of cereal foods purchased. The teacher's family had home-made bread and cakes, while the tinner's family bought bakers' bread, and occasionally cakes. The former obtained his bread at about one-half the cost to the latter, even when a reasonable allowance is made for the cost of all the ingredients in the bread, and the heat required to bake it. The teacher's family used more cereals and less vegetables and fruits than the tinner's family. In these ways, the former family obtained in their vegetable foods 36 grams of protein and 1,485 calories of energy for six cents per man per day, while the latter spent more than twice the amount (thirteen cents) per man per day, and obtained 44 grams of protein and 2,200 calories of energy. In other words, the teacher obtained for eighteen cents as much protein and nearly as much energy as did the tinner for twenty-six cents."*

Waste of Food.

Dietary studies have brought out the fact that the waste of food material varies from three per cent. to six per cent. of the amount furnished. In some families there is practically nothing wasted; in others there is much waste. Waste occurs in four ways,—two of them in the kitchen and two at the table. The one who prepares the meals may waste by too much or unwise trimming of meats and vegetables, and in the manner of cooking them. She may also waste by cooking a larger amount than is needed, and

* Bryant.

by lack of skill in so preparing left-overs as to have them sufficiently palatable to be eaten. Those at the table waste by eating more than the system requires, and by taking on their plates more than they can eat. The food chemists have no intention of ascertaining what portion of food shall be weighed out to each person daily; neither is it intended that a dietary for each day in the week shall be printed and hung up, thus relieving the people of responsibility. Their only object is to show the nutritive value of different food materials, and point out which are the most economical sources of nutrients, and what combinations, will, in general, best subserve the purpose intended. The special applications must be made by each individual and each family.

Food Values.

Some people avoid white flour, in the belief that it is composed largely of starch. A study of the chemical analyses of wheats and flours will reveal the fact that white flour from hard northwestern spring wheat is rich in protein compounds. It contains twelve per cent. or more of muscle-forming material.

The idea is prevalent that yellow cornmeal contains more fat than white cornmeal. Chemical analyses show no difference in the composition of meal made from corn grown under the same conditions, whether yellow or white. The color has no practical bearing on the food value. Yellow butter is more attractive, and more pleasing in appearance, but has no greater food value than white butter. The same may be said of eggs having a dark-yellow yolk. The banana is a valuable fruit, but it cannot take the place of other foods. A child would be better nourished if he breakfasted on potatoes alone, than on bananas alone, but plain bread and milk would be better than either of the others, if a single dish is taken. Some people still cling to the idea that mushrooms contain much

nutriment. Chemical analyses show them no better than other vegetables in this respect, and inferior to some.

References: U. S. Office Exp. Stations, Reprint from Year Book Dept. Agr. 1898—A. P. Bryant—pp. 445-450; U. S. Dept. Agr., Farmers' Bulletin No. 93, pp. 13, 14; U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 37, p. 57; U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 29, p. 45; U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 21, pp. 206-214; U. S. Dept. Agr., Exp. Stations, Bulletin No. 32, p. 28; Feeds & Feeding—Henry—pp. 616-618, 641; Minn. Bulletin No. 54, pp. 70-72; U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 98, p. 31 et seq.

CHAPTER XXIX.

MEAT—ITS USES AND ABUSES.

Those who have studied the dietaries of different people tell us that well-to-do professional men and students in America consume much larger portions of muscle-forming foods than are found necessary to well-nourished men of the same class in Europe. Shall we continue to feed ourselves unwisely because we live in a land of plenty, or shall we let reason regulate our diet and be blessed with sound bodies and unclouded intellects? Prof. Atwater says: "Taking results as they are, they very decidedly confirm the general impression of hygienists that our diet is one-sided, and that we eat too much. This is due partly to our large consumption of sugar, and partly to our use of such large quantities of meat."

A diet composed too largely of meat tends to produce acid fluids in the body. The gastric juice, acid in its normal state, becomes more acid. The saliva, normally alkaline, becomes acid. The result often is disease, brought about by these unnatural conditions. There are foods which produce the opposite effect.

Under the general term "meat" may be included fish, as well as other animals the flesh of which is used for food.

In some localities, fish is a cheaper source of protein than meat. It always forms a pleasant variety, as well as a nourishing food. The belief that fish is a fine brain food no longer has credence. Analyses have shown it not universally richer in phosphorus than other animal flesh. Neither is there any evidence that persons using fish instead of meat have greater brain power. The nutritive value of fish, like other foods, depends upon the digesti-

bility. Experiments so far have shown it to be about like meat in this respect. The fatter fish, and especially where the fat is mingled with the lean, are more difficult of digestion than those containing less oil. Cod, haddock, perch, pike, and bluefish are some of the leaner fish, while salmon, shad, and mackerel belong to the other class.

Analyses show that lobsters, crabs, shrimps, etc., contain some nutrients, but these and oysters must always be regarded as delicacies, over the greater portion of the world, on account of the difficulty of obtaining them fresh and at a reasonable price. According to the data recently collected by the United States Fish Commissioner, more than a billion pounds of fish are taken annually in the United States waters, and mostly consumed at home, yet people in the inland towns and cities seldom have a really delicious fish, except when they visit the lakes in summer, so quickly do fish lose their finest flavor. There is a difference in the flavors of fresh and salt-water fish. Which is better, depends entirely upon individual taste. The price of fish in the market depends on several things. Fish from clear, deep, cool water are preferable to those which inhabit water that is shallow and warm, and they consequently command a higher price. Water which flows over a rocky and sandy bottom contains fish preferable to those which inhabit a stream having a muddy bottom. Some fish are considered very poor or unfit for food during the spawning season, but shad are at their best at this time. The manner in which fish are taken also affects their food value very materially. Where gill nets are used, and the fish die slowly in the water, they decompose readily, and are very inferior. When fish are thrown upon the land, and allowed to die slowly, the result is the same. They should, in all cases, be killed immediately, both because it is more humane, and on account of the food value. Fish may be bought in the market either whole or dressed. It is better to buy those from which the entrails and scales have

been removed. There will probably be less nutritive material lost if the remainder of the dressing is done at home. According to good authorities, fish lose from ten to fifty per cent. of their weight in their preparation for cooking, the amount lost depending upon the size of the fish. Fish preserved by salting, smoking, and drying, or by a combination of these ways, can always be obtained well preserved, but the flavor, of course, is changed. Salt fish must be kept under brine. When wished for use, they should be soaked in plenty of cold water, skin side up. The water should be changed several times. After such treatment, they are very palatable when cooked. Finnan haddie (a dried fish) is best washed clean and braised, or stewed in sweet milk. Codfish requires a little different treatment still. Dried fish weigh much less than fresh fish, owing to the evaporation of water. The loss ranges from fifty to sixty per cent., or more, according to whether the fish are boned. Large quantities of fish are canned each year. Most fish are canned in their own juices; the flavor of the fresh fish is thus largely retained, and they will keep indefinitely before the can is opened.

The clam juice and fish extracts offered for sale have little or no food value, but are, no doubt, beneficial in some cases. Preservatives are probably used in some cases in shipping fish and oysters, but their use is not desirable because of their harmful results. Laws have recently been passed in some states preventing the use of preservatives in various food products.

*"Ptomaines are poisonous bodies due to the action of micro-organisms. They are chemical compounds of definite composition, and are elaborated by micro-organisms breaking down the complex ingredients of animal tissue, just as alcohol is due to the action of yeasts breaking down sugar, or as acetic acid is due to the action of mycoderma acetic breaking down alcohol. The formation

*U. S. Dept. Agr., Bulletin No. 85.

of ptomaines quite generally—although not always—accompanies putrefaction (often in its early stages), and therefore great care should be taken to eat fish only when it is in perfectly good condition. Fish which has been frozen, and after thawing kept for a time before it is cooked, is especially likely to contain injurious ptomaines.

"Canned fish should never be allowed to remain long in the can after opening, but should be used at once. There is some possibility of danger from the combined action of the can contents, and the action of the air upon the solder of the can itself. Furthermore, canned fish seems peculiarly suited to the growth of micro-organisms when exposed to the air.

"Finally, fish offered for sale should be handled in a cleanly manner, and stored and exposed for sale under hygienic conditions.

"Oysters, when 'floated' or 'fattened,' should never be placed in water contaminated with sewage, as such contains typhoid fever germs, or other harmful material. It is only just to say that the dangers from parasites, micro-organisms, ptomaines, and uncleanly surroundings are not limited to fish. Under the conditions which favor the growth of micro-organisms, meat and other highly nitrogenous animal foods undergo decomposition resulting in the formation of ptomaines. Animal parasites may be acquired from flesh of various kinds, if not thoroughly cooked, provided, of course, the flesh is infected. This danger is reduced by proper inspection. Vegetable foods may also become contaminated in various ways. The importance of measures to secure pure and wholesome food can hardly be overstated. The best interests of the people undoubtedly demand a strict and impartial supervision by public officers of the sale of food products."

"In view of statements of a popular nature which have been made on the dangers from eating poisonous fish, or from ptomaines contained in fish, a few words summarizing the actual knowledge on these topics seems de-

sirable. There are several species of fish which are actually poisonous. Few of them, however, are found in the United States, and the chances of their being offered for sale are very small. Such fish are mostly confined to tropical waters. Fish may contain parasites, some of which are injurious to man. These are, however, destroyed bv the thorough cooking to which fish is usually subjected."*

Small fish are usually preserved in oil, and are often broiled and served on toast at luncheons.

Herring are usually either pickled or kippered,—that is, salted and dried. Herring, sprat, and Yarmouth bloaters—all small fish—are used for relishes.

Anchovies are small fish, caught in great numbers in the Mediterranean Sea. They can be had pickled or preserved in oil, or in the form known as anchovy paste or butter. The whole fish are used as relishes, and served in a similar manner to those spoken of before. The paste is used in making sandwiches and sauces.

Lobsters are usually found in our markets boiled. Like the rest of the fish family, they have the best flavor when killed soon after leaving the water. Professional lobster cookers boil them immediately after they are taken from the water. When bought alive, they should be very lively.

Shrimps are usually found in the northern markets cooked. They are generally shelled also; lobsters are not.

Prawns are much like shrimps, but larger and coarser. All three are used in soups, salads, and sauces. Crawfish are usually sold in the shell, and are used for bisques, and for garnishing dishes of fish, when used at all.

Oysters can be bought in the shell or bulk. Liquid oysters have, in addition, the liquid which comes from the shell, diluted with more or less water. Solid oysters are almost free from liquid. Oysters are usually

divided into three grades. The larger ones are called "counts," and are used for frying, broiling and panning. "Selects" are next in size. They are sometimes called "culls," and are nice for escaloping. The smallest are called "stewing oysters." When oysters are taken as they come from the shell, large and small together, they are called "straights."

According to the best authority, beef gives more muscle-forming food in proportion to the fat than either mutton or pork. In mutton and lamb, the proportion of protein and fat is about the same as in the fatter cuts of beef. The leaner cuts of pork contain practically as much fat as the fatter cuts of other meats. Smoked ham is similar in composition to the cuts just mentioned. The large proportion of fat is due in part to the loss of water. The carbohydrates of meat are scarcely worth mentioning, being only a fraction of one per cent. The amount of mineral matter varies. The most important mineral matters are phosphates of potash, lime, and magnesia. There is a wide difference in the food value of meat, whether it be cuts from different animals or different cuts from the same animal. The chuck rib contains about the same amount of nutrients as the loin. Cuts from the loin cost about one-third more. The reason for this is that the loin can be cut into steaks, which can in a few minutes be ready for the table, and they have a fine flavor. The cuts from the chuck rib require much more time to render them equally palatable, and in many cases as digestible, as the other. The extra one-third is paid to gain flavor and save time and skill. Here again the farmer has the advantage over his city cousin,—he can have the entire carcass for live-weight cost.

The prime ribs often give less nutritive material than the chuck ribs, but they sell for a higher price. The cuts from rump and round can usually be bought for two-thirds the price paid for the choice cuts, and if one desires as much food value as possible for the money ex-

pended, it is well to buy these, and by skillful manipulation render them palatable and digestible. People who are acquainted with the manner in which the poor of the cities live say that the married women who work for wages could often save more money than they earn by staying at home and skillfully manipulating their domestic affairs. It is said that they often buy the better cuts of meat because they are so much more readily prepared.

Meat is a large item of expense in any family, but the tougher cuts are usually the least expensive. Why are some cuts of meat tougher than others? The muscles which are much used are always tougher than those which are used little or none. Compare the tough, juicy round with the tender, dry tenderloin of beef. The reason the same cuts from different animals vary in this respect is that each little filament or fibrillae of which the muscle is composed is surrounded by a membrane. If the animal from which the meat was made was young and well nourished, this tissue is small in proportion to the central part of the filament. In an old and poorly-nourished or hard-worked animal, the tissue is relatively much thicker and harder. The same is true of the fibre or bunches of fibrillae forming the muscles themselves, there being a thicker membrane covering the whole. To soften the cell walls in vegetable foods and render the product palatable and digestible, we subject the food to a long, slow cooking, as in cereals. In a similar manner we render tough meats tender, palatable, and digestible. Different meats vary greatly in flavor. This is mainly due to either the kind or amount of extractives contained in the flesh. The muscular fibre of mutton and pork seems to have very little flavor. The characteristic taste is derived largely from the fat in each case.

Any particular kind of meat has its best flavor when the animal from which it was made was of the best breed, at the most suitable age, and had been cared for and fed in the most perfect manner. The flesh of young animals

is more tender but poorer in flavor than that from animals of mature age. In general, the flesh of the female is more delicate than that of the male. Animals which feed on fish usually have a disagreeable flavor. Fish are themselves an exception to this rule. The proportion of nutrients is smaller in fish than in meats, ordinarily, on account of the large proportion of water which they contain. Chicken and turkey are rich in extractives, but poorer in fat than the fatter meats. They have a large amount of refuse, yet they furnish a goodly amount of protein. Meats are a food in which there is excellent opportunity for wasting. The bones and trimmings of meat, which are often thrown away, would aid in making a soup which would in turn help to prevent that worst of all wastefulness, overeating. So far as investigation has been made, meat seems to be quite well digested by most healthy persons. Raw beef has been found more easily digested than that which is cooked. Pork should always be eaten well done, because parasites are so often present in this meat.

Roasted joints of all meats take precedence over those which are boiled. Prof. Atwater says: "If it is desired to kill any organism in the inner portions of the cut of meat, the piece must be exposed for a long time to the action of heat. Ordinary methods of cooking are seldom sufficient. In a piece of meat weighing ten pounds, the temperature of the interior after boiling four hours was only 190° F. The inner temperature of meat when roasting has been observed to vary from 160° F. to 200° F., according to the size of the piece. In experiments on the canning of meats, it was found that when large and even small cans were kept for some time in a hot-water bath at a temperature considerably above the boiling point of water, the interior temperature of the meat rose only to 208° F. in some cases, and to 165° F. in others. The larger cans are, of course, more likely to be imperfectly heated through to the center.

The digestibility of meat is greatly influenced by the presence or absence of fat. Lean meat is, in general, more digestible than fat meat, but much depends upon the kind of fat, and the manner of its distribution. Mutton fat is more difficult of digestion than that found in beef. If the fat is mingled with the fibre of the meat, as in eel and lobster, the rate of digestibility is less rapid. One authority says that the white meat of the shad, with its greater freedom from incorporated fat, is nearly ten per cent. more digestible than the dark and fatter meat of the same fish.

From time immemorial, man has desired meat as a part, at least, of his diet, unless debarred by a moral or religious belief. Drying was probably the method first used for preserving meats. This means of preservation is still used in the preparation of dried beef and summer sausages. Nutritive value is here sacrificed, to some extent, for the sake of appearance. American meat is said to be salted before drying, which, of course, draws out some of the juices. It owes its red color partly to the action of the saltpeter, and in part to drying in the shade.

A method of canning similar to that now in use was patented by Wertheimer in 1839. There is evidence that the art of preserving food by means of heat was known to the ancient Pompeiians, as sealed jars of perfectly preserved figs have been found in the ruins.

When put up in cans, meat retains both color and quality.

According to Prof. Atwater, "canned corned beef contains more protein pound for pound than fresh beef, and stands very high in fuel value."

It is claimed that dried meat prepared in the best manner has lost none of its nutriment, but contains only about one-fourth of its original amount of water. Here as elsewhere in comparing its nutritive value with that of fresh meat, its digestibility would necessarily be considered. The Mexicans still use a primitive method of dry-

ing meat. The meat is hung over a slow fire and allowed to smoke and dry at the same time. Hunters and travelers in wild countries often "jerk" the meat they kill, using green sticks which will not readily burn to hold it over the open camp fire. To so preserve it that it will keep long in hot weather, the meat must be cut thin and broiled until quite dry, and if thoroughly smoked, all the better.

Farmers often preserve meat fresh for use during the winter months by freezing it. To preserve meat in this way, it is best to cut the meat at once into the cuts in which it is to be used. Pack these in snow, and set the vessel containing them in a room without fire. The meat is thus more readily handled when wanted for use, and loses less of its juice, as it is necessary to thaw only the amount needed for immediate use. So long as meat is kept frozen, it will remain fresh, but it must not be allowed to freeze and thaw. Greater skill is required to cook frozen meats properly than those which have not been frozen, as the juices exude very readily when a piece of frozen meat thaws. All frozen meat should be thawed before cooking. It is best to set it in a covered vessel, and allow it to thaw slowly in a room where there is fire.

Salt as a preserver of meats has long been in use. Its action on fresh raw meat is to draw out some of the juices, thus robbing the meat, not only of a part of the water, but taking out such other elements as the water with the salt is capable of dissolving. The tissues are on this account somewhat hardened.

There are in common use several methods of preserving by means of salt. By one method, the meat is immersed in a strong salt solution called brine. Pork is the most readily preserved by the use of salt of any of the meats. A second method of using salt as a preservative is by packing the meat in dry salt, using only a sufficient quantity of salt to act as a preservative for a time, then completing the operation by smoking. This gives a fine

quality of meat, known as "country cured ham" and bacon, though the work is very perfectly done by meat-packing firms and by some local butchers. Saltpetre is sometimes used in small quantities with the salt to give the meat a finer color. The quality is now considered improved by this treatment, as it hardens the tissues. Soda is sometimes used to overcome the hardening process. Borax is sometimes used also, as both it and saltpetre are believed to aid in preserving the meat. Borax and soda used in this way, even in small quantities, are considered detrimental to health. Brine which has been once used is believed to dissolve out a less amount of the juices of the meat than a fresh solution does. For this reason, farmers sometimes boil the brine used the previous year, cool, and use it again, but this process is hardly to be recommended, as a fresh brine seems to be more desirable on account of greater cleanliness.

Under the name "meat extracts" we find a large number of preparations. These might be roughly divided into four classes: (1) The true meat extracts, which contain little else than the flavoring matters of the meat from which they are made, in addition to such mineral salts as may be dissolved out. Such should contain no gelatine and no fat. They cannot, from their mode of making, contain any albumen. They are, consequently, merely stimulants, like tea, coffee, and other allied substances. (2) Beef broth and beef tea. These, as commonly prepared in the household, contain some fat, some protein, and have some food value, though the amount may be easily overestimated. (3) Meat juices. These contain the juice extracted from meat by pressure. They usually contain some albumen. Preparations containing dried pulverized meat are called by the same name. These each have some food value. Preparations known as predigested food contain the soluble albuminoids, etc., which are obtained from the meat by artificial digestion. These are in some

cases really what they claim to be. The uses of any of these should be by competent medical advice.

In addition to the meat proper, there are other portions of the animal which are known as "offal." In large packing houses, these parts are preserved and utilized. Hearts, livers, oxtails, and kidneys are used for food. Also the tongues of cattle, sheep, and pigs, as well as ox-lips, ox-palates, and sweetbreads. Also pigs' noses and pigs' feet. The lungs are rich in nitrogenous matter, and are used in some countries for food by mincing and combining with other meats. The blood is used to some extent by the Germans in blood puddings and sausages. Caen, France, is noted for the manufacture of tripe. The offal generally contains less fat and about the same amount of mineral matter as the portions called "meat." Much of the remainder of the offal is used for some purpose. The skin is made into leather. Parts of the hoofs, bones, and horns are made into glue. The hoofs and horns proper are made into buttons, spoons, and other articles. Some of the intestines are cleansed and preserved for sausage casings. The bladders are useful for packing putty. The bones make good fertilizers for the land, and are also useful in sugar refineries. The blood may be used in the refining of sugar or as a fertilizer. Pepsin is made from certain parts of the animal, as the stomach of the pig and the thyroid gland of the sheep. In small places, many of these materials are mostly waste, as there is not the means of at once making them into these final products.

The American industry in salted and cured meats is very great. According to the official report for the fiscal year of 1892 to 1893, the American exports of bacon amounted to 397,000,000 pounds. Eighty-two million pounds of ham were exported, 53,000,000 pounds of salt pork, and 58,000,000 pounds of salted beef. The canning of meats is also extensively carried on.

Our critics tell us that we eat as we live,—very rap-

idly. Figures, which never lie, tell us that we consume meat and sugar in excessive quantities. In some localities, at least, this is true. A one-sided diet never fails to bring evil results.

We, as a nation, boast that we can make an American of any foreigner who chooses to make his home among us. Let us then pay more heed to our manner of living, and hasten the time when we can say that the native American is a model man, physically, mentally, and morally. We study wise feeding in the care of stock, but hear what one writer says of us: "It is not surprising that the Americans are coming to be known as a race of dyspeptics when we consider their universal ignorance of the uses of foods and the needs of the human body."

References: U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 102; U. S. Dept. Agr., Office Exp. Stations, Bulletin No. 34.

CHAPTER XXX.

FOODS AND DIET.

Food is that which, when taken into the body, repairs waste, forms tissue, or yields energy in the form of heat and muscular power. Most food material contains a portion which is non-edible in addition to the nutrients. In fish, the bone and skin form the non-edible portion; in eggs, the shell; in meat, the bone,—and so on. Foods present a great variety of appearances and flavors, but chemical analyses show that each one is composed of a portion or all of the following compounds: Protein, fats, carbohydrates, and mineral matter. Water is usually present in food, and while not classed among nutrients, is absolutely necessary in the body, because it carries the nutrients, and, as it bathes the different tissues, each appropriates to itself such nutrients as are needed for repairs or growth.

The nutrients are made up of the following elements: Nitrogen, carbon, oxygen, hydrogen, phosphorus, sulphur, calcium, magnesium, sodium, potassium, silicon, chlorin, fluorine, and iron.

Probably no single nutrient contains all of these. Of the nutrients named above, protein alone supplies nitrogen to the body, and it is therefore necessary that we take food containing some protein, as the muscular tissues and the fluids of the body need it for repairs and growth. Protein is capable of forming fatty tissues, and can be used to produce heat and energy, but it is not wise to use it so, because this entails unnecessary work on the organs, thus, in time, often causing disease. Protein is also more expensive than fats and carbohydrates, which should be used for producing heat and energy. Mineral matter is the only

nutrient which cannot supply carbon, hydrogen, and oxygen to the body.

Classification of Foods.

Foods may be classed, with reference to their origin, as animal foods and vegetable foods. The principal animal foods are eggs, meats (including fish of all kinds, poultry, and game), milk, and cheese. Vegetable foods include all edibles commonly called "vegetables," as well as nuts and fruits. Animal foods are in general richer in protein, easier of digestion, and higher in price than vegetable foods, though there are some exceptions to this rule. Milk, cheese, and the cheaper cuts of meat are inexpensive sources of protein food, and when properly prepared are well assimilated, though tough meats and all kinds of cheese require careful preparation.

Vegetable foods in general contain a small amount of nutritive material in proportion to their bulk. Legumes, such as peas, beans, and lentils, are an exception to this rule. Cereals are also rich in protein, starch and fat. Vegetables and milk are especially valuable in giving needed bulk to the food, and many fruits and young vegetables aid digestion much by furnishing needed acids and mineral matters. Almost all animal and vegetable foods furnish some mineral matter, but milk and cereals are especially valuable in this way. Water is also a source of mineral matter.

Fat is derived from both the animal and the vegetable kingdoms,—as the fat of meat, milk, etc. Its chief source among vegetables is nuts, as the peanut, walnut, etc.; fruits, as the olive; and grains, as corn and wheat.

With reference to their use in the body, foods may be classed as protein foods,—as eggs, meat, milk, etc.; carbohydrate foods,—as rice, potatoes, etc.; and fatty foods,—as pork, butter, etc.

Classification of Nutrients.

The following is from Bulletin No. 21, U. S. Dept. Agr., "Chemistry and Economy of Foods."

"The following familiar examples of compounds, commonly grouped with each of the four principal classes of nutrients, will serve to define the terms as here used, and may perhaps help to avoid the confusion which unfortunately results from the variations in usage by different writers.

PROTEIN

"Proteids: Albuminoids, e. g., albumen of eggs; myosin, the basis of muscle (lean meat); the albuminoids which make up the gluten of wheat. Gelantinoids, e. g., constituents of connective tissue which yield gelatine and allied substances, e. g., collagen of tendon, ossein of bone.

"Nitrogenous extractives of flesh, i. e., of meats and fish. These include kreatin and allied compounds, and are the chief ingredients of beef tea and most meat extracts.

"Amids: This term is frequently applied to the nitrogenous non-albuminoid compounds of vegetable foods and feeding stuffs, among which are amido acids, such as aspartic acid and asparagin. Some of them are more or less allied in chemical constitution to the nitrogenous extractives of flesh.

"Fats: Fat of meat, fat of milk, oil of corn, wheat, etc., the ingredients of the "ether extract" of animal or vegetable foods and feeding stuffs, which it is customary to group together roughly as 'fats,' include, with the true fats, various other substances, lecithens and chlorophylls.

"Carbohydrates: Sugar, starch, celluloses, gums, woody fiber, etc.

"Mineral matters: Potassium, sodium, calcium, and magnesium chlorides, sulphates, and phosphates.

Uses of Food—Functions of Nutrients.

"The two chief uses of the food of animals are, first, to form the material of the body, and to repair its waste;

and, second, to yield energy in the form of (1) heat to keep the body warm, and (2) muscular and other power for the work it has to do.

"In forming the tissues and fluids of the body, the food serves for building and repairing. In yielding energy, it serves as fuel for yielding heat and power.

"The different nutrients of food act in different ways in fulfilling these purposes. The principal tissue formers are the albuminoids. These form the frame work of the body. They build and repair the nitrogenous materials, as those of muscle, tendon, and bone, and supply the albuminoids of blood, milk, and other fluids.

"The chief fuel ingredients of the food are the carbohydrates and fats. These are either consumed in the body, or are stored as fat, to be used as occasion demands.

Building and Repair—Functions of the Protein Compounds.

"The albuminoids are the building material for the body. The bodily machine is made from them, but in the making of the machine the albuminoids remain partly albuminoids, and are partly changed to gelatinoids, so that the machine, as built, consists of both albuminoids and gelatinoids. The gelatinoids cannot, according to the best evidence now at hand, be transformed into albuminoids, but they do serve to protect the albuminoids from being consumed. Both albuminoids and gelatinoids, after they have served as building material, can be broken up and oxidized within the body. In this cleavage and oxidation, they serve as fuel.

"The nitrogenous extractives can neither build tissue nor serve as fuel, but they are useful otherwise. Just how they are useful is not yet fully explained, but they appear to exert some influence upon the nervous system to act as stimulants, and thus to help the body to make use of other materials in its nourishment."

Carbohydrates.

Chief among carbohydrates are the sugars and starches. These contain the three elements, carbon, hydrogen, and oxygen, and, in common with other carbohydrates, furnish heat and energy to the body. Their chemical formulae are somewhat different. Glucose, grape sugar, and levulose, or fruit sugar, have six atoms of carbon, twelve atoms of hydrogen, and six atoms of oxygen. Cane sugar and milk sugar have each twelve atoms of carbon, twenty-two atoms of hydrogen, and eleven atoms of

Sugur Cane and Sugar Beets.

oxygen. The starches have six atoms of carbon, ten atoms of hydrogen, and six atoms of oxygen. Cane sugar is that derived from juices of plants; the sugar cane and sugar beet being the principal sources of this variety. The sugar beet furnishes about two-thirds of the sugar of commerce, and the sugar cane a little more than one-third. The sugar from either one of these two sources is called "cane sugar," or, more properly, "sucrose."

U. S. Dept. Agr., Farmers' Bulletin No. 93, makes the following statement: "By no chemical test can pure crystallized saccharose or cane sugar from the different

sources be distinguished. It is often asserted that beet sugar has less sweetening power, or that fruits preserved with it do not keep so well, but this can only be true of specimens that have been imperfectly purified. Methods of refining raw sugar have been so improved in the last few years that it may be truly said that few food substances are so nearly pure chemically as the best granulated or lump sugar.

" 'Loaf sugar is,' Blythe says, 'as a rule, chemically pure. It is probably, indeed, the purest of all substances in commerce. The only sugars that may be impure are the raw sugars.' "

Cane sugar is so cheap at present that it is seldom adulterated. Low-priced sugars showing an almost white color often contain a very large per cent. of water, owing to the way they are treated in the vacuum pan. More sweetening can usually be bought for a given sum in the higher-priced, pure-white sugars, because they are drier.

Maple sugar, on account of its peculiar and pleasant flavor, is very much higher in price than the same amount of saccharine matter in common sugar. This leads to the belief that it is adulterated, but since it is one of the group of cane sugars, it is difficult to detect adulteration. It is generally believed, however, that a large part of the maple sugar of commerce is made from glucose, with enough maple sugar added to give to it the maple flavor. This flavor is also imparted to syrups by the use of an extract of hickory bark.

The use of glucose as an adulteration has several advantages over preparations of bark mixtures. It is cheap, wholesome, and gives syrup a good body and a light color. No syrup should contain glucose unless distinctly so marked. Glucose has a much lower sweetening power than cane sugar. The glucose of commerce is largely a by-product from the starch manufactories. A glucose food is very similar to a starch food partially digested. Glucose is very largely used in the adulteration of honey. Ex-

tracted honey may be pure, or it may be glucose with just enough of the genuine article to disguise it, so far as sight and taste can discover, but by chemical means any adulteration can easily be detected. Cane sugar is not extensive-

Sorghum Plant.

ly employed to adulterate honey, because it tends to crystallize readily.

The Coloring of Sugar.

*"White and yellow sugar usually receives a special treatment, either in the vacuum pan or the centrifugal, in

*U. S. Dept. Agr., Division of Chemistry, Bulletin No. 13.

order to prevent a gray or dead appearance. In the case of white sugar, blue ultramarine is the substance usually employed for this purpose. The coloring matter is suspended in water, and is applied as a final wash in the centrifugal immediately before stopping the machine. This process is termed 'bluing.' A very small amount of the color adheres to the crystals, giving the sugar a whiter and brighter appearance. Some sugar makers suspend a small amount of ultramarine in the water, and drain it into the vacuum pan a few minutes before the strike is finished. In addition to this treatment in the pan, the sugar is also blued in the centrifugal. It is not unusual to find sugars which have been excessively blued, and which, on solution, yield a blue syrup. Fortunately ultramarine is not poisonous, and no injury to health can result from its use."

Digestibility of Foods.

The value of a food depends partly on the amount of nutritive material it contains, and partly on whether the nutrients are in such form that they can be made use of by the body. Some foods are more easily digested and assimilated when raw than when cooked, as ripe fruits, melons, lettuce, cabbage, etc. Meat and white of egg are in many cases more easily used by the body when taken raw, but they have a better flavor when cooked. Most foods lose something both in flavor and food value by cooking, if they are perfectly palatable and wholesome raw.

Some protein foods are digested largely in the stomach, where the gastric juice dissolves the insoluble materials, and renders them capable of entering the circulation, to be carried to such parts of the body as need them. Others are digested largely in the lower part of the digestive tract, where the pancreatic juice performs a work similar to that done by the gastric juice in the stomach. Protein foods of vegetable origin are usually more difficult of digestion

than those of animal origin, and many require cooking to render them fit for human food at all. Vegetable protein, as found in beans, peas, cereals, etc., is mixed with starch and cellulose, so that neither the flavor nor the food value is perfect unless thoroughly cooked.

Both sugars and starches, when taken in excess of what is needed to furnish the heat and energy required by the body, tend to lay on fat. A man doing hard work in the open air can assimilate much larger quantities of sugar than one of indoor life and sedentary habits. Sugar is generally regarded as adapted to the sick only in small quantities.

It is believed that sugar is more easily digestible when taken in liquids, as tea, coffee, and water, than in cake or other such food. A sufficient number of analyses have not been made, however, to prove this conclusively. Sugar, like butter, is highly prized for its agreeable flavor, and while starchy foods alone might furnish sufficient carbohydrates, the use of sugar in many cooked dishes is absolutely necessary to their palatability. There is, however, no excuse for eating sugar in sufficient quantities to injure the health.

ABUSE OF FOODS.

The oft-repeated words of Sir Henry Thompson must be heard many times more before we are all free from the evils here spoken of: "I have come to the conclusion that more than half of the disease that embitters the middle and latter part of life is due to avoidable errors in diet and that more mischief in the form of actual disease, of impaired vigor, and of shortened life accrues to civilized man in England and throughout central Europe from erronous habits of eating than from the habitual use of alcoholic drink, considerable as I know that habit to be. Speaking in general terms, man seems at the present time prone to choose foods which are unnecessarily concen-

trated, and too rich in nitrogenous or flesh-forming materials, and to consume more in quantity than is necessary for the healthy performance of the animal functions. Sick headaches and bilious attacks pursue their victims through half a lifetime, to be exchanged for gout, or worse, at or before climacteric, and so common are these evils that they are regarded by people in general as a necessary appendage of poor humanity. No notion can be more erroneous, since it is absolutely true that the complaints referred to are self-engendered, form no part of our physical nature, and for their existence are dependent almost entirely on our habits in relation to food and drink. As a rule, man has little knowledge of, or interest in, the processes by which food is prepared for the table. Until a tolerably high standard of civilization is reached, he cares more for quantity than quality, desires little variety, and regards as impertinent an innovation in the shape of a new aliment, expecting the same food at the same hour daily."

This celebrated English physician intimates that after a high degree of civilization has been reached human beings prefer quality to quantity, and enjoy variety at different meals. According to the above statements,—and who can gainsay them?—the health and happiness of the people of America depend largely upon the wives and daughters in the different families. If, as we attend to selecting and preparing the food for daily meals, we can feel that we are accomplishing as much as can be done in any other way to insure health and happiness, we will certainly consider housekeeping a very exalted occupation.

Every one knows that the unused muscles of the body become weak and flabby, and that exercise which is too severe, if long continued, shows deleterious results. A person may be scrupulously neat and clean, and take just the proper amount of exercise in the open air, but he will not have well-developed muscles, and there will not be the glow of health on his face. He will not have the powerful mind nature gave him the material for forming unless

he so regulates his food and drink as to give all the internal organs regular exercise in proper amount. The digestive organs are just as certainly dwarfed by lack of exercise, and weakened by undue exercise, as the muscles on the outside of the body are.

It is not best that all foods be made just as easily digestible as possible. Such a course would impair the digestive organs by giving them too little work. On the other hand, no one would think of giving the family raw potatoes. This would be the other extreme. If there is an invalid in the family who needs predigested food, prepare special dishes for him for a time. Let him take a little of the normal food at each meal, if possible, and thereby gradually strengthen his weakened powers.

Every women who has catered to a large family knows how hard it is to prepare at each meal extra dishes, month after month, and year after year; but there is no better way. If the diet for the family is made to coincide with the requirements of the invalid, there will sooner or later be a family of invalids.

There is no better way of avoiding the excessive use of one sort of food than by varying the kinds served at different meals. Take, for example, meat which, when eaten in excess, produces very deleterious results. Instead of preparing meat for every meal, let eggs in some of the many ways in which they may be cooked, or eggs and cheese, which are so delicious, take their place. Use codfish or some other fish and there will probably not be a greater quantity consumed than the organs can care for. Children can often be kept from consuming one food in excess by serving a moderate quantity, and then giving them something else, and serving the first again after they have almost satisfied the appetite.

"As Heaven is not reached in a single bound, but we build the ladder by which we rise," so each housewife, instead of being discouraged by the many uncontrollable cir-

cumstances, should study the needs and idiosyncrasies of the different members of her family, and little by little help to make it impossible to call the American people a race of dyspeptics.

For a picked-up dinner, a soup containing considerable nutrition would be appropriate, as a puree of peas, or lentils, or a milk soup of some kind. A meat soup contains some little nutrition, but very little even when not accompanied by any cereal, as it has in it more or less protein, some gelatine, and some fat. Of course the use of a well-cooked cereal or nice soup sticks give an additional amount of nutriment.

Soup at the beginning of the meal serves two purposes: It is capable of furnishing more or less nutrition in an easily assimilated form. It in a measure quiets the nerves, allays the feeling of extreme hunger, and places one in a pleasant state of mind for enjoying his meal. With a simple broth nothing is needed, and it is better served without any addition when there is sufficient nutriment without this, as it gives opportunity for greater variety when it is needed. Soup sticks or a cereal, as rice, barley, or a paste of some kind, are nice with broth. For a dinner, the roast is supposed to give a sufficient amount of protein, and a light soup is best. When fish is used in a simple family dinner, the soup should be omitted. Let the vegetables which accompany the roast be such as are most palatable with it and with the soup. With mutton, turnips, sweet potatoes, cauliflower, rice, etc., taste well. They furnish the bulk of the carbohydrate (with potatoes) which the mutton, rich in protein, needs. It would no doubt be well for us to serve acid fruits with meats more than we do. With roast mutton, currant jelly, apple sauce or baked apples are very appetizing. Either apple sauce or baked apples are an addition to roast pork. These not only gratify the palate, but they furnish the system some of the acids which its welfare demands. When but two courses are used in a dinner, let those two be the roast,

with its accompanying vegetables, and a salad. The system needs the vegetable as well as the fruit acids to keep it in a healthful condition. It would often be better for the family to dispense almost wholly with desserts, except that fruit or some light form of dessert may be used. Pies and puddings are very fruitful causes of the pernicious habit of overeating. In a lunch in which a bean or lentil soup is used, tomatoes are a very acceptable vegetable. They are pleasant with soup, and furnish the needed acid.

Broiled chicken, watercress, and creamed potatoes almost make the mouth water at their mere mention, so plainly do they show that such a combination is the work of an artist. Onions seem to give to pork what it lacks in flavor. With turkey or chicken, stewed peaches, browned apples, or apple sauce may occasionally take the place of the accustomed cranberry sauce with good effect. With chicken or turkey, many vegetables harmonize well, as tomatoes, corn, sweet potatoes, hubbard squash, cold slaw, etc. Squash and corn, squash and peas, squash and beets should not appear on the bill of fare together.

In combining foods to suit the taste, we wish to produce a pleasing harmony or a happy contrast. Sliced cooked carrots, seasoned with salt, pepper, and vinegar, may be used with broiled fish, instead of sliced cucumbers, for the sake of variety. A little onion mixed with sliced cucumbers gives them a pleasing flavor. Many of these combinations cannot be made by the farmer's wife or daughter unless she can have the variety of foods to work with. The farmer has much to do with the cooking, and especially with the combination of foods. With the modern horse garden tools, and with the knowledge of good hardy and large yielding varieties of vegetables, berries, and other fruits which are now in reach of most farmers, there is no good excuse for such a lack of variety of foods as is sometimes found. These implements and better varieties, and this available knowledge of gardening, have greatly

cheapened the price of vegetables and fruits to the town people. Gardens properly planted in rows, and cultivated largely with horse tools, will cheapen the berries and other luxurious necessities from the garden. Twenty dollars expended in a horse hoe, a hand wheel hoe, a garden seed drill, and a few good books on vegetables and fruit growing, is ofttimes a better investment than a new grain binder, or even a threshing outfit. Always remember the garden, the need of a reasonable variety of food, and the weary woman who tries to make appetizing meals on the wheat farm, before spreading out on more land to be covered with mortgages and weeds.

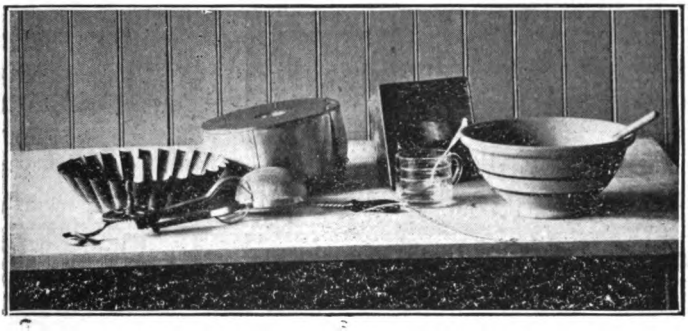
The housewife on the farm finds it difficult to have much fresh meat during the summer, as she is often at some distance from the market. In winter it is an easy matter to have plenty of it at home, and she is not dependent on the market. On the farm during the summer there are plenty of nice salted meats of all kinds. Fresh-laid eggs are abundant. No one has better young chickens or finer-flavored fowls. There is plenty of pure sweet milk and golden June butter. A little codfish and salted fish in the storeroom leaves nothing to be desired in the line of meat. If the housewife has a good garden, plenty of small friuts, and a well-laden orchard, she needs just one thing more to enable her to feed her family in the most approved style, and that is an abundance of physical strength. For she has not only to provide for the present needs, but, like the ant, she must prepare for the winter that surely will come, when fruits and vegetables will be needed to give bulk to the otherwise too-concentrated diet.

References: U. S. Dept. Agr., Farmers' Bulletin No. 23, pp. 6-8, 12, 15; Univ. Minn., Chemical Division, Bulletin No. 54, p. 68; Feeds & Feeding—Henry—pp. 40, 41; U. S. Dept. Agr., Farmers' Bulletin No. 121; Food and Its Functions—James Knight; Disorders of Digestion—Dr. Burdon Sanderson. For a treatise on therapeutics, see Gilman Thompson's Food Dietetics, U. S. Dept. Agriculture, Division of Chemistry, Bulletin No. 13.

CHAPTER XXXI.

CAKE MAKING.

The two principal kinds of cake are sponge cake and butter cake. Butter cakes should be well beaten in the making, as this renders them lighter and finer grained, and they require less soda or baking powder. Sponge cake should not be beaten, or it will be close and tough. Pastry



Utensils Used in Cake Making.

flour should be used for both kinds of cake, as they will be more tender. When intending to bake cake, see that the fire is so arranged that the heat will be right, get materials and utensils on the table near where you will work. When making any cake, sift flour and sugar before measuring. Fine granulated sugar is better than coarse. Measure all the ingredients except the extract before you begin to work. When baking powder is used, save out a little flour, and mix the powder with it. When soda is used, mix with a little flour and put in same as baking powder.

A thin butter cake will bake in twenty to twenty-five minutes. If thicker, bake longer, but not too long, so as

to shrink too much. Fruit cakes should bake two or three hours. They are better steamed.

When creaming butter for cake, stir until soft and pliable before adding any sugar. The creaming will thus require much less labor and time.

When eggs are used, measure instead of counting, for eggs vary so much in size that you have not always the same amount, if by count. If you wish a light and feathery mass, as in angel or sponge cake, beat the whites of the eggs with an egg whip of some kind. If you wish the mixture to be light, fine grained, and delicate, use the dover beater on both yolk and white. Always beat the yolk until thick and lemon colored.

It is well for the amateur to protect bottom and sides of a cake with a greased white paper lining in the pan, as this prevents a too hot fire having so deleterious effects. A bed of sand or a thick paper under the cake aids in this.

The usual proportions in cakes are one part butter, one part milk, two parts sugar, and four parts flour. Too much sugar, too much butter, or too little flour will give a heavy cake.

To Make a Butter Cake.

First measure the sifted flour and sugar. Wipe the measure, and measure the eggs, pour them out, and measure the butter. Have baking powder in a little flour. Stir the butter until soft and pliable before adding any sugar, then beat the sugar in a little at a time. Stir until very white and creamy. If there is more than twice as much sugar as butter, beat a part of the sugar with the egg yolks. Beat the yolks of the eggs until thick and lemon colored, then put with the creamed butter and sugar, and beat the two together. Add a little liquid, and beat until thoroughly incorporated, then add a little flour, beat that in, and alternate thus until all is used. Add the flavoring, and beat that in. Then with a clean beater beat the egg whites stiff, but not dry. Be sure that there is no yolk in

the white, as it will not beat well if there is. Keep eggs cold for beating. Beat in the baking powder, then fold the whites in. If the oven is too hot at the bottom set the cake pan on a little salt or sand. Have the oven a moderate heat. Leave the cakes in the pan until cooled some. The whole eggs unbeaten may be put into the cake one at a time after the flour and milk have been thoroughly beaten together. After adding each egg to the dough carefully stir it in and beat until thoroughly incorporated before adding the next. This manner of putting in the eggs gives a fine-grained, light, moist cake.

Butter Cake—For Class Work.

One-half cup of sugar, one-fourth cup butter, one-fourth cup of milk or water, one-half teaspoonful of baking powder, three-fourths cup of flour, one egg, one teaspoonful (scant) of flavoring.

Butter Cake—For Home Work.

One cup of sugar, one-half cup of butter, one-half cup of milk or water, one teaspoonful of baking powder (level), one and one-half cups of flour, two eggs. Put together and bake as directed for making butter cake.

Plain Cake.

One cup of milk, one cup of butter, two cups of sugar, three cups of flour, four eggs. Put together the same as directed for butter cakes in general. These proportions can be used for any plain cake.

Yolk Cake—With Water.

Five egg yolks, three-fourths cup of sugar, one-half cup of butter, one-half cup of water, one teaspoonful baking powder, two cups very soft flour, one teaspoonful extract of lemon. Put together as any butter cake. If bread flour is used, take less.

Gold Cake.

One and one-half cups of flour, one-half cup of sweet milk, one cup of sugar, one-half cup of butter, one teaspoonful of baking powder, yolks of four eggs, one teaspoonful of extract of vanilla; beat the yolks of eggs with dover beater until thick and lemon-colored. Cream the butter and sugar by first stirring the butter until soft, then add the sugar, a little at a time, and beat until the whole becomes very white. Add the milk and flour alternately, a little at a time, thoroughly incorporating each addition of milk or flour before adding the next. Add the extract and beat in thoroughly, then add the baking powder mixed with two tablespoonfuls of flour, which have been saved out for the purpose. Lastly, fold the beaten yolks into the mixture, put into pan and bake.

Silver Cake.

One and one-half cups of flour, one-half cup of sweet milk, one cup of sugar, one-half cup of butter, one teaspoonful of baking powder, four egg whites, one teaspoonful of extract of lemon. Put together same as gold cake.

Joe's Sponge Cake.

One cup of sugar, one cup of flour, one teaspoonful of baking powder, one-half cup of cold water (scant), one-fourth teaspoonful of salt, one teaspoonful of flavoring, four egg whites, three yolks. Beat the yolks slightly, and add the sugar. Then beat until light. Add the flour and water alternately, and fold in the beaten whites. Bake forty minutes in a slow oven.

Sponge Cake—Mrs. Caldwell.

One-half cup of fine granulated or pulverized sugar, one-half cup of pastry flour, three eggs. Whip the whites of the eggs, and when they are about half beaten sift in one-third of a tablespoonful of cream of tartar, and continue beating until the eggs are very stiff, sift in the sugar.

Add the yolks beaten light and creamy. Sift and fold the flour in very lightly. Bake in a very slow oven.

Water Sponge Cake.

Yolks of eleven eggs, one and one-half cups of granulated sugar, one cup of cold water, one teaspoonful of mixed flavoring (one-half lemon and one-half vanilla), three cups of flour, sifted, three level teaspoonfuls of baking powder. The object in making this cake is to use the yolks left from making angel cake. Bake in a rather cool oven.

Sponge Cake—Mrs. Ewing.

Weigh ten eggs. Take equal weight of sugar, finely granulated preferred. One-half as much by weight of flour as sugar. Juice of one lemon with most of peel grated. Beat eggs separately. Leave out two of the yolks. Beat yolks as light as possible, add to them the lemon juice, and about two-thirds of the sugar, and into this stir the flour. Beat the whites very light, and add to them the remainder of the sugar, fold this into the mixture of yolks, lemon juice, and flour. Bake in a slow oven forty-five minutes or more.

Angel Cake—For Home Work.

One cup white of egg, one cup winter wheat flour, one and one-fourth cups of fine granulated sugar, one level teaspoonful of cream of tartar, one teaspoonful of almond extract. Eggs vary so much in size that it is better to take a certain measure of the white than a definite number of eggs. Put the measured whites in an earthen bowl, break lightly with an egg whip, sift in the cream of tartar, and beat until the eggs will cling to the bowl and not slip out if the bowl is turned upside down. Add the extract. Then fold sugar and flour, which have been sifted together, into the egg, sifting it in gradually, and stirring only enough to combine it with the egg. Put the mixture in an ungreased pan, the bottom of which has been covered with white paper, place carefully in an oven

of moderate temperature, and cover with a baking sheet or tin, so as to protect the top of the cake, but not exclude the air. Remove the cover in half an hour, when the cake should be perfectly risen, and bake half an hour longer. When taken from the oven, turn the pan bottom upwards, and if it has no legs, rest it upon cups or bowls until the cake is perfectly cold. Then remove by slipping a thin-bladed knife between the cake and the sides of the pan. Success in making angel cake depends largely upon having an oven of the proper temperature. If the oven is too warm, the cake will be tough.

Angel Cake—For Class Work.

One-fourth cup of flour, one-fourth cup of sugar, and one tablespoonful more, one-fourth teaspoonful of cream of tartar, one-fourth cup of egg white, one-fourth teaspoonful of extract of almond. Put together same as larger rule. Bake in very slow oven.

Cream Cake or Roll Cake—For Class Work.

Scant two-thirds of a cup of sugar, generous two-thirds of a cup of flour, two medium-sized eggs, two-thirds of a teaspoonful of baking powder, two tablespoonfuls of water (cold), one-eighth of a tablespoonful of salt, four drops of flavoring.

Beat the eggs with a dover beater until thick and lemon colored, add two-thirds of a cup of sugar, and beat with a spoon until well mixed; then add flour, in which is sifted the baking powder and salt; then add the flavoring, and two tablespoonfuls of cold water. Stir until well mixed. Bake in a moderate oven.

Cream Cake or Roll Cake—For Home Work.

Beat three eggs until very light, then add one cup of sugar (scant), and stir until well mixed. Then add a cup of flour, minus one tablespoonful, and, when mixed, add three tablespoonfuls of cold water. Lastly add the tablespoonful of flour, plus two teaspoonfuls of baking powder, and stir until mixed. Flavor with one teaspoon-

ful of lemon or vanilla. Bake in greased papered pans in an oven a little hotter than for sponge cake. If for cream cake, bake in pie tins in three layers, but if for roll cake, bake in a large pan in one layer, making a thin sheet.

Filling for Cream or Roll Cake.

One cup of milk, one egg, two tablespoonfuls of cornstarch, one tablespoonful of granulated sugar. Put the cornstarch into a bowl, and mix it with one-fourth of a cup of the milk, pouring on a little at a time, to prevent lumping. Heat the remainder of the milk, and add to the cornstarch mixture. Return to the saucepan and cook five minutes after it reaches the boiling point, stirring constantly. When done, add it to the egg yolk, pouring slowly, and stirring well to insure a smooth mixture. Return to the fire, let reach the boiling point, and pour over the egg whites and sugar beaten together. Mix well and add to the cake when cool enough not to soak. Turn the cake when done onto a board dusted with powdered sugar. With a sharp knife trim a narrow strip from each edge, cover with the filling, and roll. Wrap a narrow, white cloth about the cake to hold it in place until it cools.

Whipped cream, sweetened and flavored, may be used, and is far better for cream cake than the fillings.

Sunshine Cake.

One teaspoonful of cream of tartar, three-fourths of a cup of egg white, one-fourth of a cup of egg yolk, one cup of flour and one-fourth teaspoonful of salt, one cup of sugar, one teaspoonful of extract of lemon and vanilla in equal parts. Beat the egg yolks until stiff and lemon-colored and add the flavoring. Add the cream of tartar and salt to the egg white and beat until stiff, but not dry, then fold white and yolk carefully together. Fold the sugar and flour, which have been sifted together, into this egg mixture and bake forty-five minutes in a slow oven. Keep the cake covered during the first twenty minutes. It should be well risen in twenty minutes, but browned lit-

tle. To prepare a pan for sunshine or angel cake wipe out well and fit a white paper over the bottom, but leave the pan without grease. When the cake is done, turn the pan upside down on a support which just touches the edges of the pan and allow to cool. If done, it will not fall from the pan, and is lighter for hanging so.

Sunshine Cake—Class Rule.

One-fourth cup of egg, one yolk, the rest white, one-fourth cup of sugar, one-fourth cup of flour, one-fourth teaspoonful of cream of tartar, a dust of salt, four drops of lemon and vanilla extract in equal parts. Make and bake same as directed for sunshine cake.

Cottage Pudding—Class Rule.

Flour one-half a cup, less two tablespoonfuls, soda one-eighth of a teaspoonful, salt one-eighth of a teaspoonful, one-half of a beaten egg, three tablespoonfuls of sugar, two teaspoonfuls of butter (melted), one-fourth cup of sour milk, two drops of lemon extract. Put the milk, salt, melted butter and sugar into a bowl, add the flour, a little at a time, beating well, then the egg, and beat well, then the extract, and put into a buttered baking tin. Bake twenty to twenty-five minutes.

Cottage Pudding—Home Rule.

Flour two cups, soda one-half teaspoonful, two small eggs, or one large one, two-thirds of a cupful of sugar, one cup of sour milk and three tablespoonfuls of melted butter. Put together same as in Class Rule.

White Cake.

One cup of cold water, three and one-half cups of pastry flour, or three cups of bread flour, three-fourths of a cup of egg white, one-half cup of butter (scant), three level teaspoonsfuls of baking powder, one teaspoonful of extract of lemon. Cream the butter and then add the sugar a little at a time and cream the two together. Add the water and flour alternately, incorporating the one be-

fore adding the next. Add the baking powder with the last of the flour, then stir the extract into the mixture, and lastly fold the beaten whites into the dough. Bake in two parts in a moderate oven for about twenty minutes covered, and then uncover and bake until it ceases to tick when the ear is put near. Bake all together if desired, but give more time in the oven.

Miss Pike's White Cake.

One cup of egg whites, one-half cup of butter, two and one-half cups of flour (very soft flour; take less flour if bread flour is used), one and one-half cups of granulated sugar, two level teaspoonfuls baking powder, one cup of water, two teaspoonfuls of extract. Put together and bake as any white cake.

Marshmallow Cake.

Two cups of sugar, one cup of milk, three-fourths cup of butter, two and one-half cups of flour, six egg whites, one teaspoonful of baking powder, one teaspoonful of vanilla. Cream the butter and sugar. Add flour and milk alternately, a little at a time. Put baking powder in last of flour. Fold in beaten eggs last.

Filling for Marshmallow Cake.

Two tablespoonfuls phosphate gelatine and enough of the pink to color. Soak in two tablespoonfuls of cold water half an hour. Pour on eight tablespoonfuls of boiling water, stir till the gelatine is dissolved. Sift in powdered sugar until very thick. Beat until stiff after it cools to the consistency of honey. Spread on the cake while still pliable, and set in a cool place. Flavor to taste before beginning to beat.

Caramel Cake.

One-fourth cup butter, one cup of sugar, one-fourth cup of milk, one and one-half cups of pastry flour, or one and one-fourth of bread flour, one level teaspoonful of baking powder, two eggs, one teaspoonful of vanilla, one-eighth teaspoonful of grated nutmeg. Beat the eggs

separately. Cream the butter, then add a part of the sugar, and cream together, and add the rest of the sugar to the beaten yolks. Put the nutmeg in the yolks, add milk and flour alternately, incorporating one before adding the other, each time. Put the baking powder in with the last bit of flour, add the vanilla, then carefully fold in the whites. Bake in layers. Put together with caramel filling.

Filling for Caramel Cake.

One teaspoonful of glucose, one-half cup brown sugar and one-fourth cup of milk. Cook the mixture until it forms a soft ball in cold water, let cool a little, and beat until it clouds a little. Flavor with vanilla, stir full of chopped English walnuts, and spread on the cake. The glucose is not necessary, except that it prevents graining so readily.

Maude's Cake.

One-half cup butter, one and one-half cups sugar, one teaspoonful extract, three cups flour (three and three-fourths if very soft flour), one cup liquid (water makes a more delicate mixture than milk), three level teaspoonfuls of baking powder, four whole eggs. Put together as directed in cake making and bake in a moderate oven until you cease to hear a ticking when putting the ear near the cake, or until the cake shrinks from the pan.

Ribbon Cake.

One cup of butter, two cups of sugar, one cup of milk, four cups of flour, four eggs, four level teaspoonfuls of baking powder, one teaspoonful of vanilla. Put together as directed for butter cakes in general, and bake two layers plain. Into the remaining dough stir three-quarters of a teaspoonful of cinnamon, and half a teaspoonful of grated nutmeg, one cup of seeded raisins, one-half cup of English currants, and one-quarter cup of citron. Cut all very fine, and roll in flour before adding to the dough. Put together with white frosting.

Spiced Cake No. 1.

Use one-half the quantity of the ingredients for ribbon cake and the whole quantity of spices.

Spiced Cake No. 2.

One-half cup of butter, one cup of sugar, one-half cup of milk, two cups of flour, two eggs, two level teaspoonfuls of baking powder, one-half teaspoonful of vanilla, three-fourths of a teaspoonful of cinnamon, one-half a teaspoonful of nutmeg and one-fourth of a teaspoonful each of cloves and allspice. Mix the spices with the flour and put together as butter cakes in general.

Marbled Chocolate Cake.

Two ounces of chocolate, four eggs separated, one-half cup of milk, one teaspoonful of vanilla, one-half cup of butter, one and three-fourths cups of flour, one and one-half cups of sugar, one teaspoonful of baking powder. Dissolve the grated chocolate in five tablespoonfuls of boiling water. Cream the butter and sugar, beat the yolks until thick and lemon colored, add them to the creamed butter and sugar, and beat thoroughly. Add milk and flour alternately, beating vigorously between. Take out one-half cup of the mixture, and beat the chocolate into the rest. Take a tablespoonful of the well-beaten egg whites, and fold the rest into the cake dough. Color the portion in the cup with a maroon vegetable paste (bought for the purpose), fold in the spoonful of egg white, then put into the cake, and stir just enough to marble it. Put into the pans and bake in a moderate oven about forty-five minutes.

Chocolate Cake—Mrs. Hays.

Two cups of granulated sugar, one-half cup of butter, four egg yolks, well beaten, three tablespoonfuls of chocolate, dissolved in five tablespoonfuls of boiling water, two-thirds cup of sweet milk, one and two-thirds cups of flour, one level teaspoonful of baking powder, four egg whites, well beaten. Put together in order in which they are given, folding the egg whites in carefully last.

Fruit Cake—Mrs. Lugger.

Three-fourths pound of flour, three-fourths pound of sugar, one-half pound of butter, two pounds of currants, two pounds of raisins, one pound of citron, six eggs, one-half pound of dates, one-half pound of figs, fine cut, one glass of grape juice, one teaspoonful of soda. Bake three hours. It will keep a year, if you wish.

Fruit Cake—Mrs. Preston.

Four cups of flour, two cups of sugar, two cups of butter, one cup of sweet milk, five eggs, four cups of raisins, two cups of currants, one cup of citron, one teaspoonful of soda, two teaspoonfuls of cream of tartar. Flavor to taste. Put together as butter cake. Roll fruit in flour before adding. Bake three hours.

Fig Cake.

One cup of sugar, one-fourth cup of butter, one egg, well beaten, one cup of water, two cups of flour, two level teaspoonfuls of baking powder, one teaspoonful of extract. Cream the butter with part of the sugar, then beat the rest into the egg after it has been beaten until light. Mix the flour and water with creamed butter and sugar, using them alternately, stir in the egg and extract, and lastly the baking powder in a small amount of flour. Bake in a moderately hot cake oven. This makes two layers an inch or more thick. Use any filling desired.

Fig Filling.

Cut up one-half pound of figs and one-half pound of raisins (seeded), and cook together in boiling water. Blanch one-half pound of almonds, and hash very fine. Mix with the cooked figs and raisins. Sweeten and flavor. If too stiff, add a little more water, and spread between the layers.

Pound Cake.

Wash and squeeze in a napkin half a pound of butter. Beat it with the hand until it is quite creamy, then add

one-half a pound of sugar. Beat until it is very white and light, then add one egg, and beat until incorporated thoroughly, then add another, and beat, so continue until five eggs have been used. Take great care that each egg is completely incorporated before the next is added. This requires from three to five minutes beating each egg, and on sufficient beating the success of the cake depends. When the eggs, sugar, and butter are a thick yellow mass, add gradually a cupful of fruit juice and one-fourth of a cup of rose water. Mix well together, then sift into this one-half a pound of flour, to which one-eighth of a teaspoonful of salt has been added. When the flour is well mixed, put into a cake pan with straight (upright) sides, with buttered paper neatly fitted in it, sift powdered sugar over the surface. Bake the cake one and one-half hours in a very slow oven. It should have a cover laid over the top for the first hour. This may then be removed, and the cake allowed to brown slowly. In turning, be most careful not to shake or jar the cake.

Lady Fingers.

One teaspoonful of extract of lemon, three eggs, one-half cup of sugar (scant), one-half cup of flour, grated rind of half a lemon. Beat the yolks until thick and lemon-colored, then add the flavoring; thoroughly mix the sugar and flour, and stir into the beaten yolks. Beat the whites very stiff. Fold the whites and yolks together carefully by pouring the yolks on the whites, and folding just enough to mix well,—too much will ruin it. The oven must be of such a heat as will turn a paper yellow in five minutes. If the oven is too hot, the cakes will fall. Line the baking pans with paper, and dust with sugar and flour in equal parts. Use pastry bag with a tube one-half inch in diameter.

In forming the lady fingers, bring to bear little pressure at first, and increase it toward the end. Let there be no delay in getting it into the oven.

Ginger Bread—Home Rule.

One-fourth cup of sugar, one-half cup of molasses, one-fourth cup of sour milk or cream (use more butter with milk), one cup of flour (scant), two teaspoonsfuls of butter (four, if milk is used), one egg, well beaten, three-fourths teaspoonful of ginger, three-fourths teaspoonful of cinnamon, one-fourth teaspoonful of soda. Mix the melted butter with the sugar. Mix the molasses, sour milk, and soda together. Beat the egg, and put with this, and put into it the creamed butter and sugar, and into this stir the flour, with which the spices have been mixed. Beat well, and bake in a moderate oven.

Ginger Cake—Class Rule.

Two tablespoonfuls of sugar, one-half tablespoonful of butter, one tablespoonful of beaten egg, one-fourth cup of flour, one-half teaspoonful of baking powder, one-fourth cup of molasses, two tablespoonfuls of sweet milk, one-fourth teaspoonful of ginger and cinnamon each, a speck of soda. Put together and bake same as gingerbread.

Coffee Ginger Cake—Home Rule.

One-half cup of coffee, one-half cup of sugar, two tablespoonfuls of butter, one egg (well beaten), one and one-half cups of flour, one and one-half teaspoonfuls of baking powder, one cup of sorghum molasses, one-half teaspoonful of ginger and the same of cinnamon, one-half teaspoonful of salt. Put together as above.

Coffee Ginger Cake—Class Rule.

Sugar two level tablespoonfuls, butter one-half tablespoonful, eggs two level tablespoonfuls (about one-fourth of an egg), flour one-fourth of a cup plus two tablespoonfuls, baking powder three-fourths of a teaspoonful, sorghum molasses one-fourth of a cup, ginger one-eighth of a teaspoonful, cinnamon one-eighth of a teaspoonful, salt one-eighth of a teaspoonful, coffee (cold from breakfast) two tablespoonfuls. If the molasses is at all acid, a very little soda must be used.

Raised Doughnuts.

When the dough for buns is ready to shape, roll on the molding board, cut into doughnuts, and fry in hot fat. When done, dust with powdered sugar and cinnamon.

Doughnuts with Soda.

One egg, three-fourths cup of sour milk, three-fourths cup of sour cream, one level teaspoonful of soda, one level teaspoonful of salt, one-half level teaspoonful of cinnamon, one cup of sugar, four level cups of sifted flour. This makes about four dozen doughnuts.

Doughnuts with Baking Powder.

Make same as doughnuts with soda, except use sweet milk and four generous teaspoonfuls of baking powder instead of sour milk and soda.

Class Rule for Doughnuts with Soda, Using Fat Instead of Cream.

One-fourth cup of sour milk, one-fourth cup of sugar, three-fourths cup and three tablespoonfuls of flour, two teaspoonfuls of melted fat, two tablespoonfuls of slightly beaten egg, one-eighth teaspoonful of soda (sifted with the flour), one-eighth teaspoonful of salt, one-sixth teaspoonful of cinnamon.

Almond Wafers.

One-half cup of butter, one cup of powdered sugar, two cups of flour, one-half cup of cold water. Cream the butter and sugar. Add flour and water alternately, thoroughly incorporating the one portion before adding more, and so continue until all is used. Add one teaspoonful of almond extract. Spread thinly as possible on greased baking sheets. Scatter shredded almonds thickly over the top, and bake. Cut in squares as soon as taken from the oven, remove from tin, and roll, if desired. They must be cut, removed from pan and rolled quickly, as they soon cool and lose all elasticity.

Ginger Snaps.

One cup of lard, two cups of molasses, one level tablespoonful of ginger, two cups flour. Put lard and molasses together, and when it boils stir in the ginger, cool a very little, then stir in the flour. Let get perfectly cold, then roll very thin, and bake in a hot oven. Be careful that they do not burn. Things containing molasses burn readily.

Ginger Snaps—Class Rule.

Two tablespoonfuls of lard, one-fourth of a cup of molasses, one generous teaspoonful of ginger, one-eighth teaspoonful of salt, one-half cup of flour. Put the lard and molasses over the fire and when boiling put in the ginger and stir thoroughly. When cooled a little stir the flour into it and allow to get perfectly cold and stiff before rolling. Roll very thin and bake in an oven a little cooler than for white cookies, as they burn readily.

Cookies with Soda.

Three cups of flour, one cup of sour cream, two cups of sugar, two level tablespoonfuls of butter, one-half teaspoonful soda, and a little salt, one teaspoonful (scant) lemon extract. Bake in quite a hot oven. Let set on bottom of oven until well risen and brown on bottom, then place a few minutes on the grate.

Cookies—For Class Work.

One-half cup of sour cream, one cup of sugar, one tablespoonful of butter, one-fourth teaspoonful of soda, a little salt, scant half teaspoonful of extract. Make soft as it is possible to roll out, using plenty of flour.

Cookies with Baking Powder.

One-fourth cup butter, one-half cup sugar, two tablespoonfuls of milk, one egg, one teaspoonful of baking powder, one cup flour. Cream the butter and sugar, add the milk and unbeaten egg and the flavoring, then beat in the flour same as in making cake. Add the baking powder,

mixed with a little of the flour, last. Roll and bake in a quick oven.

Oatmeal Cookies—Mrs. Green.

Three cups of rolled oats, one cup of wheat flour, four teaspoonfuls of milk, one cup of butter, two eggs, two teaspoonfuls of baking powder, two teaspoonfuls of vanilla, one cup of sugar. Mix quite stiff, and drop from a spoon in greased pans. Bake slowly about half an hour.

Kisses.

One cup of sugar, one-half cup of water. Boil until it will thread, then pour boiling hot over the well-beaten white of one egg, flavor with rose water, and, when stiff enough to lay up in teaspoonsfuls on oiled paper, put into a very moderate oven and cook or dry for about twenty minutes.

Cocoanut Macaroons.

One cup of dessicated cocoanut, one-half cup of pulverized sugar, two level tablespoonfuls of cornstarch, two egg whites. Mix sugar and cornstarch, fold into the well-beaten egg whites, stir in the cocoanut, and bake on buttered paper in a slow oven not less than forty minutes.

Almond Macaroons.

Two ounces of almond paste, or one-sixth of a pound of almonds, one egg white, one-fourth cup (generous) of powdered sugar, one-fourth teaspoonful of extract of almond or orange flower water, used to prevent oiling when the almonds are pounded. Blanch, dry, grind, and pound the almonds, adding extract or water and sugar gradually. When the nuts are fine, add the whites beaten almost stiff, and beat well together. Use one teaspoonful of water to one-half pound of nuts. Never use more than a teaspoonful of extract to a half pound of nuts. May use both the extract and the water. The whites of two eggs is sufficient for half a pound, unless eggs are very small. Try the mixture, and if too soft to form, add a few more

nuts. For baking, oil the pan, then rub off all you can, and flour it. The dough is best put on with a pastry bag, but may be put on from a teaspoon, and smoothed with a knife and hot water. Much depends on a very moderate oven in baking. Leave in the oven fifteen to twenty minutes, or until a delicate brown. It is easier to beat the egg whites in a bowl, adding the sugar and nuts alternately, and continue the beating until the mixture will stand. Then add the extract, put into little balls, and smooth with a knife wet in hot water.

When using almond paste, use a little less sugar and four egg whites to half a pound of paste. In using the paste, it is better to take the second rule for mixing, viz., make a frosting of egg whites and sugar, and stir paste into it.

Nut Filling for Layer Cake.

Chop fine equal parts of citron and English walnuts, soak full of lemon juice, thicken with powdered sugar, and spread on the layers of cake.

Orange Filling for Cake.

Juice of two oranges, with grated peel of one (or substitute extract), one cup of sugar, two tablespoonfuls of butter, two eggs. Beat the yolks light, add the sugar, butter, and orange juice, stir over the fire until it thickens, then fold in the whites, which have been beaten stiff. Spread between the layers of cake.

Banana Filling for Cake.

Add one teaspoonful of lemon juice to the white of egg icing for cake. Spread on the cake, slice bananas and press into the frosting, put on another layer of cake, and so on until all the layers are on.

Fruit Filling for Layer Cake.

Cut fine equal parts of figs and seeded raisins. Cook in as little orange juice as will prevent burning. Flavor with cinnamon, mace, and preserved ginger, and put between the layers of cake.

Cooked Fillings for Layer Cake.

One cup milk, one egg, yolk and white beaten separately, two tablespoonfuls of cornstarch, one and one-half tablespoonfuls of sugar, a dust of salt. Flavor to taste. Mix the cornstarch with the sugar and add it to the boiling milk, cook until the cornstarch does not taste raw, then pour it over the well-beaten yolk; return to the fire and cook one minute, pour this over the egg white, which has been beaten as for a meringue, with one-half tablespoonful of sugar, fold the two together, cool slightly and spread on the cake.

Frosting for Cakes.

There are many varieties of frostings for cakes. The following will illustrate the principal ones: Boiled frosting with egg and without egg; white of egg frosting; ornamental frosting; milk frosting (cooked); caramel frosting; cream frosting (uncooked); water or fruit-juice frosting; gelatine frosting. The first three are most desirable for home use.

Boiled Frosting Without Eggs.

One-half cup sugar, one-fourth cup of water. Boil until it will form a soft ball, then cool until the finger can touch the top without adhering, flavor, stir until proper consistency for spreading, then pour on cake. If it hardens while beating, set the bowl in hot water, and stir until it melts again.

Boiled Frosting With Eggs.

One egg white, beaten stiff, one cup of sugar, and half a cup of water. Boil until it will form a soft ball in cold water, then pour in small stream on beaten egg white, beating all the time until proper consistency for spreading.

Chocolate Frosting No. 1.

Boil one cup of sugar with one-half cup of water to the hairing stage, remove from the fire, and while boiling hot beat into it one and one-half squares of grated chocolate, which have been melted in a bowl set over the teakettle

while the syrup was cooking, flavor with vanilla, beat, and when thickened so that it will not run off the cake pour over it. If stirred too long, it will harden too quickly to spread.

Chocolate Frosting No. 2.

Cook and add chocolate same as in chocolate frosting No. 1, and while still boiling hot pour over the beaten white of one egg and continue beating until it thickens so it will not run off the cake, then turn it on and spread with a knife heated in a pitcher of boiling water. All things must be ready, as this hardens quickly, and, unless knife and water are at hand, one cannot use them successfully.

Caramel Frosting, or Milk Frosting.

Glucose, one teaspoonful; brown sugar, one cup; sweet milk, one-fourth cup; butter, one teaspoonful; vanilla extract, one-half teaspoonful. Boil until it will make a soft ball in cold water. Pour into a bowl, let cool a little, add flavoring, beat until it begins to thicken, then pour over the cake.

Water or Fruit-Juice Frosting.

One-half cup of powdered sugar. Moisten with hot fruit-juice or water until it can be spread. Flavor with corresponding extract and pour on the cake.

Cold Cream Frosting.

Moisten powdered sugar to the spreading stage with sweet cream, heat over water until it melts, then spread on cake.

Milk Frosting.

Two cups of granulated sugar, one cup of sweet milk. Boil until stringy, then beat with egg beater until thick. Spread over top of cake. Then spread over this, when cool enough, one-half cake of chocolate, melted.

Milk Frosting—For Class Work.

One-half cup of granulated sugar, one-fourth cup of sweet milk. Put over the fire and cook until stringy, then

beat with dover beater until thick, flavor and pour on the cake immediately.

White of Egg Icing for Cake.

One measure of egg to four measures of confectioners' sugar. Put in two or three tablespoonfuls of sugar before beginning to beat; as mixed, add more, and so continue until all is used. Do not beat much before all is in, then beat until, when you let it stream from the spoon, it will show the rings for a short time. If orange colored frosting is desired, use the yolk of the egg instead of the white. This is a very desirable frosting.

Gum Arabic Icing.

Soak four ounces of gum arabic in one cup of cold water. When dissolved, strain into a double boiler, and add one-half a pound of confectioners' sugar, and cook until it makes a firm ball in cold water. Remove from the fire, pour the liquid over the stiffly-beaten whites of three eggs, and beat as in boiled icing. Before frosting the cake, dust the edges with powdered sugar to prevent the icing running down the sides, let cool somewhat before putting on, and beat all the time it is cooling.

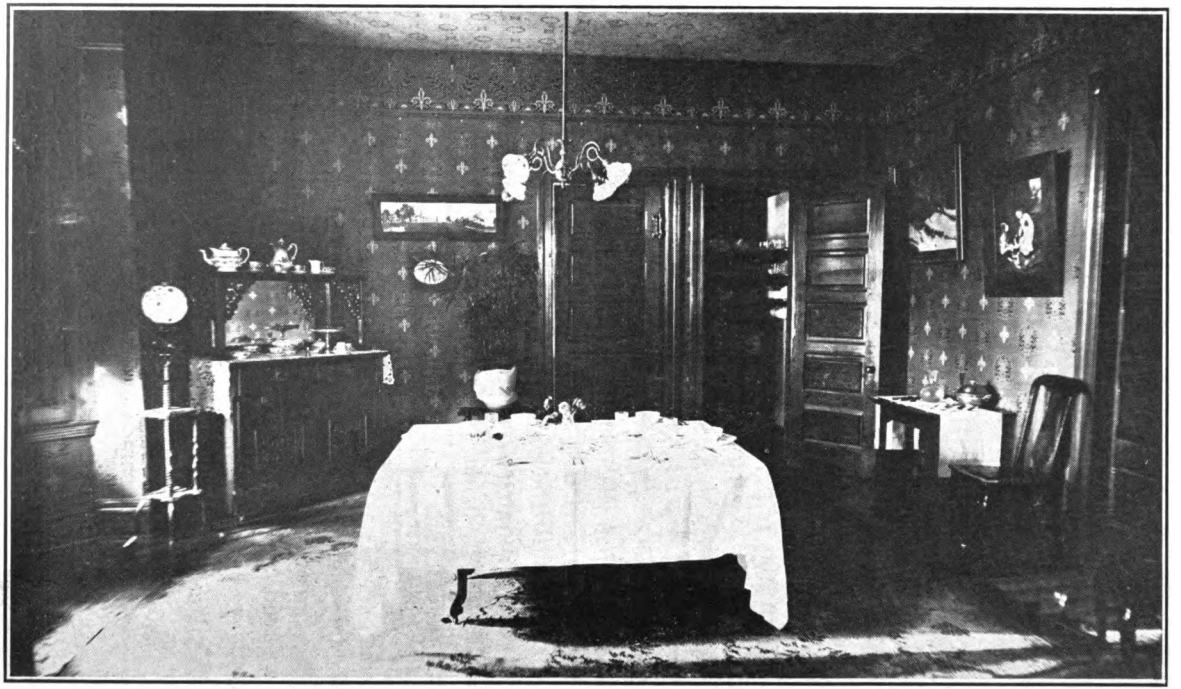
To Glace Fruit.

One cup of sugar, one tablespoonful of white wine vinegar, two tablespoonfuls of water. Put together and boil to the cracking stage. Remove from the fire, dip cherries or some other fruit with an unbroken surface, and suspend by a string to drain. Glaced fruits will keep only a short time.

To Glace Nuts.

Select unbroken kernels, and blanch and dry them. Then proceed in same manner as with fruit.

References: Buckeye Cook Book, pp. 61, 84; Parloa's Kitchen Companion, pp. 742-745; Boston Cook Book—Lincoln —pp. 369-373; Cakes and Cake Decorations—King—Part 1.



Interior of Dining Room.

CHAPTER XXXII.

THE DINING ROOM.

To have the privilege of planning and building a house according to one's own ideas of convenience and pleasurable living is very desirable. In many cases this cannot be done, but much can be gained by modifying an old house.

A china closet built in the partition between dining room and kitchen can be made both ornamental and convenient. This may be constructed in some pleasing design, with glass doors on the dining-room side, and solid doors on the kitchen side. Arrange the china on the shelves so that the pieces in daily use will stand on that portion of the shelves lying between the opposite doors. The dishes can thus be passed through from the dining room to the kitchen with perfect ease when necessary. Below these doors have shelves or drawers opening into both kitchen and dining room for the purpose of storing clean linen, kitchen towels, etc. Let the space be long enough to admit of a rolled table cloth, and sufficiently spacious to allow the pieces to lie without crowding or creasing.

A hardwood floor is most desirable for the dining room. A dull finish is preferable, as a polished floor is easily marred. Rugs and carpets should be avoided here, because they gather dust, and are also inconvenient. If something is desired to render the noise less apparent, a piece of matting a little larger than the space occupied by the chairs may be used, the edges being well bound. Such a floor covering is light and easily dusted, but is not durable. It is better to leave the floor bare, and use

rubber-shod chairs. The rubber prevents noise, and the floor is not marred. In the dining room, simplicity is both attractive and desirable. Here, as in all other parts of the house, we wish to give an individual air, an appearance which will silently say to all who enter, "cheerfulness and hospitality reign here." The decorations and furnishings should tend to make a restful and homelike room. All things suggesting stiffness and gloom must be avoided. Smooth walls are more sanitary and more easily cleaned than those presenting a rough exterior. It is better to have the walls a neutral tint than to leave them pure white. If papered walls are preferred, there are many designs from which to choose, but in order to beautify the home in an economical way, one must gain good ideas of decorative art in simple things, and thus accomplish a pleasing effect with a moderate expenditure of money. The paper must be such as to retain the effect of light and cheerfulness. In choosing it, the size, height, and furnishings of the room must be taken into consideration. In general, the walls should be lighter than the woodwork, but this is not an invariable rule. No form can be given which will suit all conditions. In order to successfully decorate any portion of the house, harmony of color should be studied. Good taste and good judgment, combined with a knowledge of these things, will bring about the desired results.

When possible, have the dining room, and, indeed, all the living rooms, so situated that they will have plenty of air and sunlight. A bright and sunny dining room may employ some shade of green in its decorations. One which is gloomy will be brightened by warm yellows and a little red, judiciously used. Select window shades of such a color that the light emitted through them will add to, rather than detract from, the general effect of rest and peace. Window curtains, whether expensive or inexpensive, simple or elaborate, are most sanitary when made of wash material.

The dining-room furniture should be simple and durable. A beautiful dark wood, with little or no ornamentation, is usually the most desirable kind of material to use in the construction of dining-room furniture. Strong, well-made chairs, with backs of medium height, having no projecting posts, will be found most satisfactory, where one prefers comfort to the caprices of fashion. A good quality of leather makes a very satisfactory covering for the seats of dining-room chairs. Such chairs cost more than some others which are well made, but they will wear a long time without looking scuffed, and they have a substantial appearance.

Whether the table be round or square, let fashion and individual taste decide. A square table gives a better opportunity for decoration, but in some other ways a round or oval shape is more desirable. For instance, when one wishes to seat an uneven number of persons, the round or oval table gives a more pleasing effect. If one wishes room for more elaborate decorations than a common table affords, it is a very easy matter to have a rough top made, which can be set over the table when needed. In any case, the table should be well made, and stand firm, and have the legs so arranged as to be as little in the way as possible.

The sideboard should be chosen of a style and quality to harmonize with the rest of the furniture in the room, and its size must be proportioned to the dimensions of the floor space.

The few pictures which decorate the walls of the dining room should be such as will please the eye, and exert a quieting effect upon the nerves.

Some nice, thrifty plants in a sunny window also heighten the pleasure of those who surround the festive board.

In table linens, we find several qualities and many different designs. The cheaper quality of table covering is that woven on an ordinary loom, and is often called

simply "table linen." The more expensive linens appear in many different designs, and are termed "damasks." Table linen can be had unbleached or half bleached, and comes in simple designs. It is inexpensive, durable, washes well, and can wisely be used for common hard wear, if damask is deemed too expensive. A cheap quality of damask can be had at about the same price as a good table linen, but does not wear nor launder so satisfactorily.

Where the air is free from smoke and dust, and where there is plenty of green grass and sunshine, as in the country, it is better to buy the half-bleached linen, and do the bleaching at home. One can thus get a better quality of linen for the same money, and it is little trouble to bleach it. Home-bleached linen looks as well as that done at the factory, and it can be bleached as used, if desired. It is not wise to use an artificial bleach, as extreme care is necessary in the use of such materials to avoid injuring fabrics.

One finds, on the linen counters, damask of Scotch, Irish, German, and French manufacture, and some from American looms. You can usually buy unbleached damask of good quality in medium width for seventy-five cents a yard. For fine brands of Irish manufacture, you must pay four or five dollars a yard. Damask of each manufacture has its distinguishing characteristics, but they are not all sufficiently marked to be apparent to the inexperienced buyer.

To obtain linen of good wearing quality, choose that which is pliable and yielding, having no sizing. Such cloth will wear much better than that which is stiff, starchy and glossy.

Avoid a mixture of cotton and linen. All cotton or all linen is better than a mixture of the two. It is not wise to buy linen for fineness especially. Such cloths are less durable than those which are a little coarser, and

after having worn each awhile, the difference in appearance does not warrant the difference in price.

Avoid a damask in which the border is separated from the main part of the cloth by a straight band of different weave, as this is very apt to draw (especially if laundred in the steam laundry), and injure the appearance of the cloth. Cross barred cloths are subject to the same criticism.

Never buy fringed cloths or towels. They soon lose bits of fringe here and there, even when properly laundered, and if they come from the laundry with the fringe hanging in matted strings, as is often the case, they are unsightly from the first.

A pattern cloth is prettier than one bought by the yard, but the patterns always cost more. Detached figures in the designs are always prettier than the all-over patterns, in which there is little space between the different portions of the pattern. Select the prettiest pattern there is in the lot you have to choose from, for they are all the same price, and a pleasing design adds much to the beauty of the cloth. One finds greater variety of designs in linens of Irish, Scotch, and French manufacture than in German goods. They are also by many considered more elegant, but a heavy German damask gives excellent satisfaction in durability, and is found in many pretty designs. Avoid a design which has an open, lace-like effect, as the open work will cause the cloth to last a much shorter time.

The way in which linen is made and cared for has much to do with its appearance and durability. Fashion dictates that, in figured damasks, both table cloth and napkins should be finished with a very narrow rolled French hem. By those who have time and skill to hemstitch and ornament their linens, beautiful plain damasks and round thread table linen may be procured. All linens should be hemmed by hand. In laundering linens, avoid rubbing them on the board, and use no starch in them, if they have good body, and in any case not enough to show at all as starchy stiffness.

The silence cloth used under the linen adds to the length of time it can be used without looking soiled, and also renders the cloth more durable, by relieving it of friction from the edges of the table. It also gives a light-weight cloth an appearance of having more body.

The pattern damasks and all of the better piece linens have napkins to match. One has a choice in size between those called five-eighths of a yard square, three-fourths of a yard square, and seven-eighths of a yard square. In most manufactures, they are liable to vary a few inches from the given size.

The best time to buy linen is during the month of January. The holiday rest is then over, and the merchants, anxious to begin the new year auspiciously, have their supplies of new linens ready for the counters at this time. One has wider range of choice in both quality and design now than later, when the most choice pieces have been culled out. Odd lots, shopworn pieces, and remnants are also brought forward at this time. New designs are usually not more costly than those of the year before. Little is gained by buying a certain pattern, in the belief that it can be duplicated in time, for the patterns do not usually run very long.

CHAPTER XXXIII

SETTING TABLE AND SERVING MEALS.

The dining-room table should occupy that position which will make the guests most comfortable, and give the most pleasing outlook. Let the chair to be occupied by the host be at the end of the table farthest from the door. The size of the table must always be adjusted to the number of guests. The top of the table must be kept polished and unmarred. Good form requires that the table be always uncovered when not in use.

The details of setting the table and serving meals vary with the conditions, the times, and the taste of the hostess, the same as all things are swayed by fashion and necessity. There are some rules for setting the table which never change materially, and there is a medium in serving meals, as well as in other things, which is never conspicuous, not overdone, nor trying, because the guests are not made uncomfortable.

Whether a beautiful and highly polished table shall be used with mats and doilies, or whether a plain table covered with a handsome, snow-white damask is more desirable, the hostess and the fashion at the time must decide. If the bare table is used, it must be protected in some way. Mats for hot dishes are often objectionable, because they do not combine beauty and utility. Hand-painted trays, with some device to prevent sliding, answer all conditions, but are very expensive. If the table is to be covered, it must be made the proper size to accommodate the number of people to be seated, then covered with a felt, and the cloth placed straight and smoothly over all.

References: Boston Cook Book—Lincoln—pp. 439-443; The Expert Waitress—Springsteed.

General Rules.

At each meal, see that such articles as the host may need are on a side table near that end of the room, and what the hostess needs are on a table near her. Oyster plates, salad plates, and dishes for ices should be cold, and soup dishes and meat and vegetable platters warm. Coffee and tea should be kept hot without deteriorating. In beginning the meal, first serve the lady on the right of the host, then pass in regular order. When removing a course, take the food first.

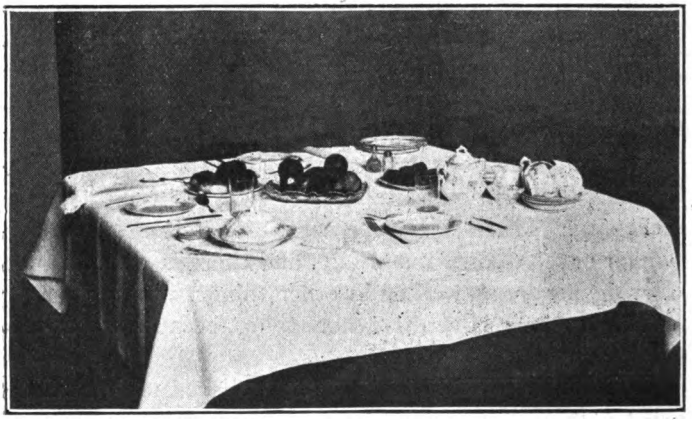


Table Laid for Breakfast.

BREAKFAST.

Oranges.
Rolled wheat with cream.
Plain omelet. Creamed potatoes
Bread. Hot rolls. Butter.
Coffee. Cream. Sugar.

The fruit plates should be put at equal distances apart, and exactly opposite each other on the sides and ends of the table. There should be a fruit doily on each plate, and a finger bowl about one-third full of water at the right-hand side of the plate. Put at each plate a breakfast knife and a fruit knife, with the blade of each turned to-

ward the plate,—the one to be used first on the outside. On the left hand, place a breakfast fork, prongs up, the orange spoon, and the spoon for the cereal, with the bowls up. If a bread and butter plate is to be used for the hot rolls, place it at the left of the plate, and lay the butter knife across the right side. At the right of the plate place a glass of milk or water. At the head of the table place a stand for the coffee pot; put cups, saucers, sugar bowl, and the teaspoons and sugar tongs near it. Put napkins at the left of the plates. Fill the glasses with water about two minutes before the people are seated.

Placing a Dish.

Cut the bread just before this, and keep the butter cold and the rolls hot until needed.

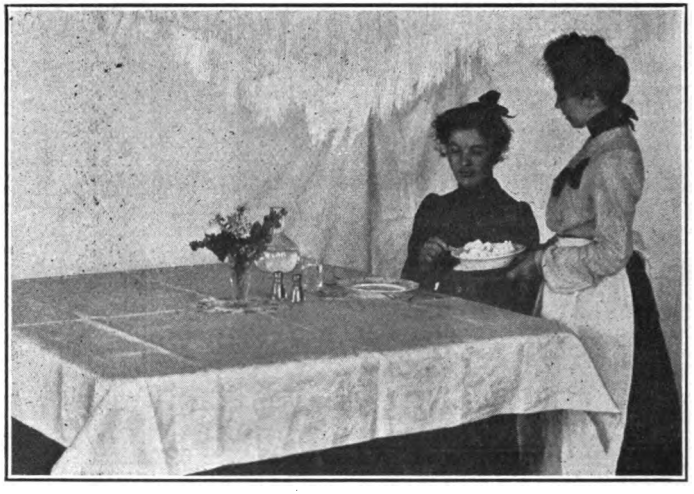
As soon as the guests are seated, pass the oranges, offering them at the left of each person.

Serve the lady of the house, unless there are old people or guests present, in which case serve them before the others.

When the fruit is finished, remove first the fruit dish, then quickly and quietly take away to the pantry all belonging to that course. Step to the right of each person,

and place the finger bowl and doily, with silver intended for the oranges, whether used or not, on the plate, and remove. Bring in the dish of rolled wheat, covered, on a tray, with a spoon beside it. Place a cereal bowl on a plate before each guest. Remove the cover from the dish to the side table, put a spoon in the cereal, and offer it by passing it on a small tray at the left of each person. Offer the sugar and cream also at the left. When the cereal is finished, remove this course same as the one before, taking food first.

Have the bread, butter, and hot rolls at hand on the



Passing a Dish.

side table, ready to set on the table the instant the other is removed. These can be brought as the other things are taken out. Place the omelet on a warm platter at the foot of the table. Put a tablespoon at the right, and a fork at the left. Place the dish of potatoes conveniently at the right. Bring a pile of warm plates, and place at the left. As the plates are filled, give one to each guest, placing it from the right. Pass the rolls and bread. Place the butter as it is dished by some member of the

family. Bring a pitcher of boiling water, and a bowl for the use of the lady of the house as she pours the coffee. As each cup of coffee is poured, place it where it belongs. Each one is prepared to suit the individual taste. If milk be used in coffee, instead of cream, it is much better to have it hot. Watch during the entire meal for anything that may be needed, and fill the glasses when empty. Let no one be under the necessity of asking for anything during the meal.

The Side Board.

Whether the sideboard is covered or bare depends on the table. If it is covered, let the sideboard be covered also. On the sideboard should be placed the water pitcher, sugar bowl for cereal, extra plates, spoons, knives, etc., that may be needed.

Luncheon.

Luncheon means primarily a light repast taken between breakfast and dinner. This repast can be made very simple, and it may be made almost as elaborate as a dinner. There are two reasons for serving a luncheon. The first and chief reason is to supply the body with some nutrients during the time of brain activity, when the children are busy with their school work, and adults of the family begrudge the time necessary to eat a full meal. It seems easier to use up the odds and ends at this time, because in the morning the appetite is not good, and the evening is the only time that the family can all be together.

There is much discussion as to whether it is better to take the heaviest meal of the day at noon or in the evening. When the family is exercising freely, it would seem better to take the heavy meal in the middle of the day, and if they do not exercise freely at any time, why do they need heavy meals.

Cream soups and purees, with plenty of good bread, butter, and milk, form the substantial part of a simple every-day luncheon. To these may be added any dainty

and tasty dishes which can be manufactured from the odds and ends found in the pantry.

SIMPLE FAMILY LUNCHEON.

Puree of green peas
Bread Butter.
Chicken croquettes Baked potatoes
Sliced tomatoes Salted wafers
Apple pie and cheese
Milk and chocolate.

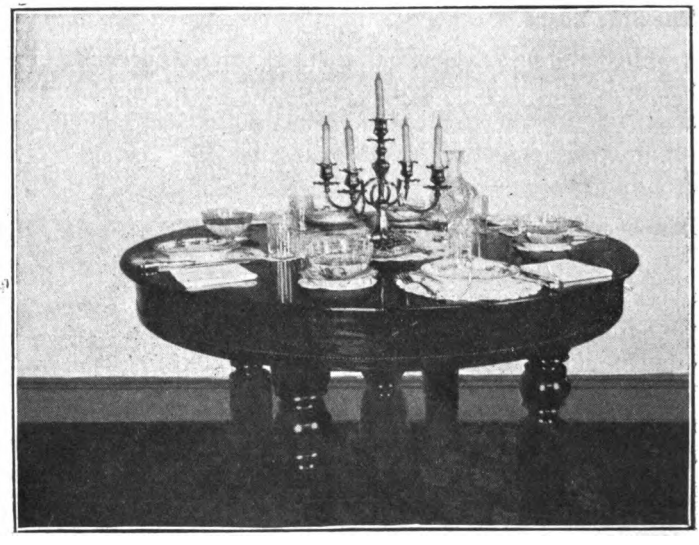


Table Laid for Luncheon.

If the table is to be covered, have it the proper size, and the silence cloth and luncheon cloth straight and smooth, as before. In the center of the table place flowers, fruit, or something of the kind, tastefully arranged. At the foot of the table, place a mat for the platter holding the croquettes, and lay a spoon at the right and a fork at the left of the dish. At the head of the table place a stand for the cocoa pitcher, and beside it place the sugar bowl, spoons, teacups, etc. A stand for a

cocoa or coffee pot should correspond with the pot, to be as inconspicuous as possible.

Use individual salts, or place salt and pepper for each two persons.

Place a luncheon plate for each person, observing the same exactness as is always necessary in setting the table. At the right of each plate place a luncheon knife, a knife for butter (if a separate knife is used), a soup spoon, and a water glass, observing the same rules as before. At the left lay the luncheon fork, a salad fork, a napkin with the bread sticks or toast fingers for the soup, and the bread and butter plate, if used. Place the dessert plates and forks on the sideboard. See that the soup dishes are hot. Ascertain whether there will be any delay. Fill the water glasses, and announce the meal.

As soon as the guests are all seated, if the soup is to be served from the butler's pantry, the waiter brings a dish of hot soup on a small silver tray, passes to the right side of the guest at the host's right hand, and places the soup dish quietly on the plate.

If the soup is to be served at the table, bring the soup tureen on the tray, and place it in front of the hostess. Remove the cover, and put it on the side table. Lay the soup ladle beside the tureen at the right, and place the warm soup plates conveniently at the left.

The waiter should stand at the left of the hostess, and as soon as a dish of soup is served, take it up with the right hand, pass and place it as before.

To remove the soup course, place the tureen on the tray, lay the ladle beside it, and carry out. To remove the plates, put the spoon in the dish, and take the luncheon plate with the soup dish. Carry one in each hand, and remove quietly. Always place and take at the right, but when passing a dish, offer it at the left.

The potatoes may be brought and placed covered on the side table, and passed by the waiter after the croquettes, or put on the plate with them. Bring in the croquettes

and potatoes, and place the dishes on mats. Place a spoon beside the potato dish. Put a pile of warm plates at the left of the platter. As soon as a plate is served with croquettes and potatoes, pass and place in front of the lady of the house, unless there are guests who should be first served. Wait upon each person at the table in the same way.

Pass the bread, and place the butter as it is served by a member of the family. The tomatoes have been previously served cold on salad plates, and set in a convenient and cool place. Set a plate before each person, and pass the vinegar or other dressing which is to be used with the tomatoes.

Pass the salted wafers.

To remove the course, place the serving fork and spoon on the platter, place the platter and fork rest on the tray, and carry away. Return for the potato dish and the bread. Remove the soiled dishes one in each hand, as before. Remove the butter, salt, and pepper, and any silver that has not been used. Remove crumbs from the polished table with fringed napkin and crumb tray. From the tablecloth take crumbs with silver crumb knife and tray. Place the pie before the hostess, and on the right put a silver knife, and on the left a pie fork. Place a pile of dessert plates conveniently at her left. As soon as a plate is ready, place a fork on it and pass to the right of the guest, and set it down. Serve each person the same way, and pass the cheese. If a cup or glass needs replenishing, attend to it at once, at any time during the meal.

Dinner.

A dinner is more elegant if a handsome and expensive plate is at each place when the table is set. These are removed by the waitress as she places the dishes of the first course.

Whether a carving cloth is used depends upon whether the carving is done at the table. Sometimes fashion de-

crees that if a man is not a good carver, it is perfectly good form to have the roast brought to the table carved, and held in place by decorations of a suitable kind.

MENU FOR DINNER.

Raw oysters
Amber soup
Celery Salted almonds
Baked shad— Sauce Allemand
Fillet of beef— Mushroom sauce
Mashed potatoes Browned sweet potatoes
Rice croquettes
Tomato salad
Salted wafers Edam cheese
Queen of Pudding
Coffee.

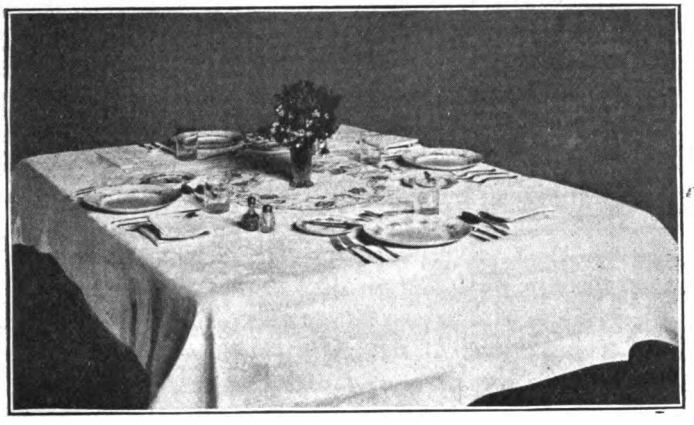


Table Laid for Dinner.

The tablecloth should be heavy and handsome, with large, square napkins to match. The same care must be exercised as before to have the size of the table suit the number of guests, and the cloth and the silence cloth perfectly straight and smooth. Place a center piece of flowers in the middle of the table. Let this be of medium size and height. Candles and mirrors are sometimes used. Candlesticks are placed in a square a short distance from

the flowers. Candelabra are placed one on each side of the flowers. The decorations may set on an embroidered piece, or on one of lace-work, or of silk or satin, if preferred.

It is very generally customary to have olives and salted almonds on the table when the guests are seated. These are served in small, beautiful, oval-shaped dishes, placed at intervals along the table, and the guests help themselves to them between the courses.

Celery is used in the same way, but served on a low, long dish made for the purpose. It is customary at the present time to further decorate the table by placing at each end a high dish of beautiful fruit, artistically arranged. Each of these dishes is accompanied by two low dishes, containing small cakes, bonbons, etc. When these are used for the decorations, they always form a portion of the dessert. The cakes are passed with the ices, and the fruit is served afterwards.

The dinner plates should be the handsomest the house affords, and be put on with the same exactness directed for breakfast and luncheon. At the right of and next to each plate, place a knife for the roast, next to this a soup spoon. Next the plate on the left, place a dinner fork, then the fish fork, and on the outside an oyster fork. Place the napkin at the left of the plate, with a dinner roll folded in it. At the right, place the water glass,—a goblet is at present most desirable.

The oysters must be free from shells, perfectly cold, and served on cold plates. It is best to have shaved ice among them. As soon as the guests are seated, serve the oysters, with a lemon point on the edge of each plate. The dinner plate must be removed from the left with the left hand, and the oysters placed from the right with the right hand. If time and space are of any consequence, it is better to leave the handsome plate off, and simply place the oysters from the right. Remove the course as directed before.

Place the soup tureen and some warm soup plates before the hostess. Lay the soup ladle conveniently at the right. When a portion of the soup is served, the waiter, who stands at the left of the hostess, should take it in the right hand and place it on the tray, step to the person sitting at the right of the host, and place it quietly on the plate before the guest. Serve the others in regular order.

To remove the course, first take the soup tureen on the tray, then remove the soup plates, one in each hand. Carry the platter of fish, the fish slicer, and the fish fork in on the tray. Place the platter before the host, and lay the fish slicer at the right of the platter, and the fish fork at the left of it. Bring the warm fish plates in, and place them where they can be conveniently taken with the left hand. When a plate of fish is served, take it with the right hand, and, standing at the right of the guest of honor, put it down, first removing the handsome plate, if one is used. Serve all in the same way, then place the sauce boat on the tray, and offer at the left of each person. The host might serve this on the plate with the fish, except that some prefer fish without sauce. To remove the fish course, place the platter on the tray with the fish slicer and fish fork beside it, and carry away. Afterwards take the soiled plates, one in each hand. If the celery and almonds have not been served by those at the table, offer first the celery and then the almonds. Place the roast before the host, and lay the carving knife and gravy spoon at the right and the carving fork at the left of the platter. Place the warm plates in the same position as for fish. Bring in the sweet potatoes and the white potatoes, remove the covers, and let the host serve a portion of each vegetable with the meat.

When a plate is ready, serve in the same manner as the fish, and pass the sauce for the same reason as before. The potatoes of both kinds might be set on the side table, and passed by the waiter after he has served the meat,

and returned to the side table, but it is just as good form to serve them on the plates, and lessen the time and service needed for the meal.

If birds are served, they are brought in immediately after the meat course is removed. The salad course comes next, and fashion at the present time, dictates that the salad shall be served by the waiter. Whether it is served by the waiter or a member of the family it is brought in on a tray in a handsome salad bowl. A salad fork and spoon are in the bowl. The waiter places a salad fork quietly at each place. If a member of the family is to serve the salad, place the bowl of salad before the host, and place cold salad plates at the left, convenient for serving. The waiter stands at the left of the host, and carries the plates the same as in the other courses.

After the salad, remove everything except the decorations and water glasses and the fruit and cakes, if they have been used on the table, as they often are at the present time. If there is a carving cloth, turn the corners together, and lift it quickly to the tray and carry out. Remove the crumbs. The waiter then brings the dessert, one plate at a time on a small silver tray, and places before the guests.

If the pudding is to be served by one of the family, it is brought in and placed in front of the hostess, with the pudding slicer at the right of the pudding dish, and the spoon at the left. The waiter serves each person as the hostess makes the plates ready. This course is removed the same as the others, and the coffee is served. If fruit is used after an ice, it and the coffee are on the table at the same time.

At fashionable dinners at the present time, black coffee is used, and is poured by the waiter from a silver coffee pot. Cream is never used with it, but sugar may be used. If it is desirable to have this office performed by a

member of the family, a coffee tray and the coffee or chocolate pot would be placed before the hostess.

In an ideal dinner party, each guest is perfectly comfortable and happy during the entire time spent under the hostess' roof. Happy is the hostess who understands sufficiently the personal relations of her friends to invite only those who are congenial. Fortunate is she if she can cast all care aside, and without any apparent effort infuse the spirit of good cheer into each of her guests. It is not only the good pleasure of the hostess to do these things, but it is her duty, as well. She meets her guests in the drawing room, and tactfully and skillfully aids them in forming pleasant little groups, and keeps them chatting merrily until all have arrived. Then the party enters the dining room.

The host leads the way, taking the most honored lady. She may be the oldest lady, or the one in whose honor the dinner is given. The other guests enter in any order they please. The hostess leaves the drawing room last, with the most honored gentleman.

At the table, the hostess must be gracious and happy, and perfectly at ease, seemingly unconscious of all that passes, yet deftly managing to have the serving well done, and keep the guests all engaged in bright and cheerful conversation. When the hostess sees that all are ready, she lays her napkin on the table, and the host rises and leads the way to the drawing room.

CHAPTER XXXIV.

EXTRA WORK FOR EACH DAY IN THE WEEK.

The following conditions are supposed to exist: The family consists of four or five people, and but one maid is kept. The ladies of the family do the work necessarily done daily in the front part of the house, put rooms to air, make beds, and dust the bedrooms. When the weekly cleaning is done, they dust the bedrooms, dust the bric-a-brac in the parlors, remove all such things, and return them to their places.

MONDAY.

It is best to have the washing done on Monday. This is not always an easy matter. No article of soiled clothing should be thrown into the closet, even for a short time, but when discarded should be placed where it can be carried to the laundry and put in the hamper. By this means it becomes possible for the maid to rise early, sort the clothes, and begin the washing, and thus the clothes will have ample time for drying while the sun is bright and the air comparatively free from dust and smoke.

The results are most satisfactory when the clothes are taken from the line at the time that there is just moisture enough remaining in them to render the smoothing process perfect. It is not wise to do this when one woman is laundering the clothes, in addition to attending to kitchen and dining room work, because the two exercises performed on the same day tax the strength too severely. The laundry should be kept clean, and be put in order after the washing is finished. Monday evening, dampen the clothes, and fold them for ironing.

TUESDAY.

On Tuesday morning set the bread as soon as the morning work is done, have the irons hot, and do the ironing. If the bread is made by the quick process, and that is by far the best method, you have some nice loaves of bread within five hours after putting the yeast and flour together, and thus have bread baked and a portion of the ironing done in the forenoon. In the afternoon, the buttons may be sewed on, and the rents mended by the mistress while the maid finishes the ironing. It is always unwise to leave any rents until after the clothing is washed, if possible to avoid it. Endeavor to have the clothes perfectly dry by evening, that they may be put away in their places.

WEDNESDAY.

On Wednesday do the extra baking necessary for the family, and clean the kitchen and dining-room closets, and the kitchen and dining-room floors. The kitchen closets, and in fact all closets, should have floors of closely joined wood, and smooth, hard walls, either ceiled or plastered. The shelves should be smooth, and painted or oiled, that nothing spilled may find lodgment in any crack or crevice, or any substance be absorbed by them.

The floor is best left bare, as it thus harbors no insects and dirt. The store closet should have a small window, with a solid, close-fitting blind and a screen, that it may be opened to give light and means of ventilation when necessary, and be closed to darken the room when desired. This closet should have many tin pails with covers for storing moderate quantities of such things as insects and mice attack so constantly. Such receptacles in a poor quality of tin would last long in a dry place, and can be had for a moderate sum. If the shelves are not extremely dirty, warm water and a clean cloth and sapolio, vigorously applied, will clean them. Open the window and give light. Begin at the top, remove each article,

fold the shelf paper up with its accumulated dust, and burn it. Scrub the shelves, wipe dry, and then rub with a fresh cloth, to remove all moisture possible. Scatter powdered borax on the shelf, and in the openings, if there be any, between the shelves and wall; put on clean papers, and replace the things. (The borax is to prevent the appearance of roaches on the shelves, if any are about.) Continue so to the bottom, and clean the closet floor thoroughly, also. Closets are extremely convenient, but should always be so that they can be lighted and aired, and they must have personal inspection at least once a week. Such a thorough cleaning as that just described would probably not be needed oftener than once a month; but there are the pantry shelves, the closet for cooking utensils, and the dining-room closet, and a closet somewhere on the first floor for overcoats, etc. This makes four closets, one to be thoroughly cleaned each week. The closet floor should be cleaned and the shelves dusted with a slightly dampened cloth every week.

Hardwood floors are best for kitchen and dining room. A sweeper is useful in removing crumbs from the floor before beginning to clean the table. A hair broom covered with a cloth of canton flannel, rough side out, is good for cleaning walls.

In sweeping a plain floor, matting, or carpet, go with the grain, and, when possible, sweep toward the light. A pointed brush should be at hand for the corners. Oiled floors should be washed clean with warm water, and wiped dry. A tile floor is treated in the same way. Linoleum and oilcloth usually need nothing more than warm water. Soapsuds spoils the appearance of oilcloth, and when something is needed in addition to the water, put a little sweet milk into the pail of water. This helps to retain the luster.

To Clean the Dining Room.

Dust the curtains and remove. If on rods, they are easily lifted out. Remove all vases of cut flowers. Re-

move plants, and dust, and wash them, if necessary. Dust and remove any articles which may be on the sideboard. Dust the sideboard, and cover it. Dust the chandelier, and draw a bag over it and tie. Dust the chairs, and remove them from the room. Dust the pictures, and cover them with a piece of cotton cloth pinned over each. An old sheet or a piece of unbleached muslin makes good covers for articles of furniture too heavy to move from the room. Remove the matting, if there is one, and clean it. Clean the windows. A paint brush or a brush for the purpose will remove dust from the corners of the sash. Paint on the glass can be removed by rubbing with a little baking soda on a damp cloth. Wash the windows using simply warm water, if this will suffice. If much soiled, use a little baking soda in the water, as soap injures the finish on wood work. If they need nothing more than dusting, rub the lower parts with a dry cloth, and the higher portions with a broom prepared for dusting walls. Use a little ammonia in the water for washing window glass, because some soaps are hard to remove, and do not leave the glass clear. Do not wash windows when the sun shines hot on them, for they dry before one can polish them properly, and will look streaked and spotted. For wiping window glass use a soft cloth which will absorb the water readily, and leave no lint on the glass. A soft, unsized paper makes a very satisfactory material for polishing window glass.

If the floor is hardwood, clean as directed above. If polished, use a soft brush; if waxed, use a weighted brush. If there are brass doorknobs to polish, cut a piece of pasteboard to fit exactly about the part which lies on the surface of the door, that the polishing may be done without injuring the woodwork.

Just a few words about dust cloths. Cheese cloth is the best material for dusting. It is soft, takes up the dust well, and is not hard on the furniture. When using the dust cloth, fold the dust inside at each stroke, and when

the cloth needs shaking, do not open a window and shake it, for in this way very often as much dust comes in as goes out. Better take the cloth outside, shut the door, and shake the cloth well to remove all dust. When through using it for the day, put it into a pail of clean water, rinse, and dry ready for the laundry, and take a clean one next dusting time.

THURSDAY.

Clean bedrooms, upper hall, and stairs. The last one to leave the sleeping room should each morning place two chairs at the foot of the bed, throw the bed clothes back over these, and open doors and windows. It is well to leave the empty slop pail in the bath-room window on the way to breakfast. The air and sunshine then begin their sanitary work upon the room at once,, and the maid can do up the kitchen work while the family are at breakfast. To make beds, remove the bed clothes, and, if there be a piazza, hang them on it to air, provided the weather permits. If they cannot be taken out, place them where the air will pass freely through them. Remove the lower sheet, and shake it outside the window. Dust the mattress, and put it out to air, if you can. In any case, remove it and dust the frame work of the bed. Dust the chairs and all movable things, and take to another room, and shut the door. Dust upholstered furniture on the piazza if possible. Dust is one of the mediums which carry germs, and the more of it we can put outside the house the better.

Remove all scarfs, tidies, etc., shake outside, and carry to the laundry when you go down stairs, if they are soiled. Take the rug up carefully, carry down stairs, dust, and leave on the line if the weather permits. Dust dresser and commode, and cover them. No soiled clothing, old shoes, or any garments which have been worn, and are not necessarily kept in the closet, should be allowed to remain, for they emit odors, attract insects, and take up needed room.

Bare floors are best, because there is no chance for insects to harbor. Take out and shake and brush any

clothing which has escaped this before hanging up, and clean the closet floor. If mattress and bedding are out of doors, leave them there, and proceed to clean the floor by first sweeping the dirt from the sides and corners of the room, and take all up on the dust pan. Never sweep the dirt from a room into the hall, but keep it close as possible. Now wash the floor, using a clean mop in the center if you wish, but never about the sides of the room. If the bed clothes must be left in the room, make the bed just before beginning the sweeping, and cover up. Dust the woodwork, fold the furniture covers carefully with the dust inside, and shake later. Put things again in their places. Shut all the bedroom doors, open hall window, and clean the upper hall and stairs. Use the carpet sweeper on the carpet, and take the dirt up on each side of it with broom and dust pan. Wash the floor with water and cloth. Clean the carpet on the stairs with a brush, and take the dirt from each step into the dust pan. Afterwards clean the uncovered parts of the steps with a cloth.

FRIDAY.

Friday, clean the silver, and sweep and dust the parlor and front hall. If the curtains and other draperies are on rollers and easily removed, take them out gently, and brush the dust from them, and lay them aside. If not removable, brush off the dust as well as you can, catch them up near the top, and cover.

Take all movable rugs from both hall and parlor out doors, and brush them with a soft brush on each side, following the line of the nap. Remove sofa pillows and brush them. Dust all bric-a-brac, and remove. Remove all upholstered furniture to the piazza for dusting, if possible; otherwise brush and cover. Dust chairs, and remove from the room, also all other movable pieces of furniture, etc. Dust pictures, and cover. In dusting things inside the room, we only drive the dust from one spot, to have it settle in another.

If there is an open book case in the room, begin at the top and dust both books and case, and so proceed to the bottom and cover all. Dust and cover all furniture in the hall. If there is a rug too large to remove, dust it, roll it up, and place it at one side. Sweep the floors, and while the dust is settling, clean the rugs by wiping the surface gently with a sponge squeezed from clear water. Clean the floors. Remove dust from walls and wood work with the covered hair broom, and clean the windows, if they need it. Dust woodwork, fold furniture covers carefully, as before, and put things again in place. Rugs too large to be moved must be sponged after sweeping. Begin the work on the further side, and work toward the door, that you may not step on the cleaned part of the rug, and be sure that the sponge is damp only, not wet.

If the floor is carpeted, sweep as directed, and after the dust settles use a clean sweeper and sponge same as rugs. A carpet sweeper should be cleaned very often. Before sweeping a floor, either bare or carpeted, scatter over it some dust preventer,—newspapers soaked in cold water, squeezed as dry as possible, and torn in bits are most excellent. Tea leaves squeezed dry are good. A handful of salt scattered about will aid in preventing the dust rising. Damp sawdust is also good. When all is ready, remove the furniture covers with their dust, and fold as before, then put the things again in place. Clean the hall floor, and put things in order there.

Polishing Silver.

Whiting is the foundation of most silver polishes. It is often wiser to buy or use simply whiting, which is cheaper and sometimes less injurious to the silver than the more expensive polishes. Never use ammonia in polishing silver, as it is apt to injure the silver. Rub with a little whiting on a damp cloth, then polish with a dry cloth, wash and wipe dry.

SATURDAY.

Do the extra baking, and clean the kitchen floor.

CHAPTER XXXV.

HOME-MADE CANDIES.

In making home-made candies, have a care to the following things. Make delicate in flavor; also vary the flavoring as much as possible. A variety is made by using crystalized ginger, candied pineapple, angelica, and candied cherries. These aid both in flavor and attractiveness. Combining two flavors, as vanilla and lemon, often produces an agreeable effect. Vegetable colorings may be used for tinting candies, but they must be very carefully used, or the candy will be too highly colored. A little on the end of a toothpick will be sufficient for the amount of fondant made from a cup of sugar. Shape the candies as nearly as possible like the store products. They appear clumsy if too large, and small pieces are more dainty.

For immediate use, candies which will melt or become sticky are not objectionable, but are better wrapped in paraffine paper. For packing to send away, use only the sugared bonbons, candies made from fondant, etc. Filled figs, cherries, and dates are also good. Something which will not dry out nor melt readily is most desirable.

To Make Fondant.

Measure one cup of granulated sugar, and stir into it cream of tartar half the size of a small pea. Put the sugar into a small vessel (granite ware or tin), and pour over it three-fourths of a cup of hot water. Cover closely, and cook covered and without stirring until it will form a soft ball in cold water. Pour into a pint bowl, and let cool until you can touch the surface lightly without its adhering to the finger. When cooled to this point, stir rapidly with a stiff, small spoon until it becomes thick and white, but not until it grains. Pour into a previously lightly but-

tered dish. Take the mass in the hands, and knead until it becomes creamy. If it hardens suddenly, wet the hands slightly, and continue to work it. Roll in paraffine paper, and lay away for a day, when it will usually be found creamy, and ready for use, but if lack of experience causes it to grain, rolling tightly in oiled paper for a few hours will usually remedy this.

Fondant No. 2.

Two cups of sugar, one-third of a cup of glucose, one and one-half cups of water. Boil until it forms a stiff ball in cold water. Pour into a bowl, and, when cool, beat until white, then knead in hands until creamy.

Sugar Taffy—(For Beginners.)

One cup of sugar, one-sixth of a cup of glucose, one and one-half cups of water. Boil until it will form a hard ball in cold water. Turn into buttered tins, and finish as any other taffy.

Brown Sugar Taffy.

Put into a saucepan six tablespoonfuls (or three ounces) of butter and three and one-half cups (or one pound) of brown sugar and one cup of hot water, boil to the cracking stage. Pour into greased plates, and mark into squares and let cool and harden, when it is ready for use. Or the candy may be allowed to cool slightly and pulled as taffy.

Brown Sugar Taffy—Class Rule.

One and one-half tablespoonfuls of butter, three-fourths cup of sugar, one-fourth cup of hot water. Proceed as in home rule.

Velvet Molasses Candy.

Velvet molasses candy is nice, and can be easily formed into any fancy shapes if one chooses to have it so.

One-fourth cup of molasses, three-fourths cup of sugar, one-fourth cup of boiling water, three-fourths tablespoonful of vinegar, one-eighth teaspoonful of cream of tartar, two tablespoonfuls of butter, one-sixteenth tea-

spoonful soda. Put the first four ingredients into a saucepan over the fire. When the contents of the pan boil, add the cream of tartar. Boil until it is brittle when tried in cold water. Stir constantly during the last part of the cooking.

When nearly done, add the butter and soda. Cool, and pull as taffy. While pulling, add a few drops of vanilla and a few drops of lemon extract, or a few drops of peppermint or wintergreen.

Plain Molasses Candy.

One cup of granulated sugar, one cup of sorghum molasses, two level teaspoonfuls of butter, soda the size of a pea, one cup of water. Boil the molasses, sugar and water until a little of the candy dropped into cold water will form a hard ball, put in the butter and soda, boil to the cracking stage, turn into buttered pans and pull as taffy. Flavor to taste.

Butter Scotch.

One-half cup sugar, two tablespoonfuls of molasses, one tablespoonful of vinegar, three tablespoonfuls of butter. Boil together until brittle when tried in cold water. When done, turn into a well-buttered dish, and mark into squares when partly cool.

Toffee.

One pound of brown sugar, one-half cup of butter, juice of one lemon, or four tablespoonfuls of vinegar. Heat sugar, butter, and acid over the fire to 270° F., and pour over nuts, and let harden. Or cook until it forms a soft ball in cold water.

Peanut Candy.

One cup of coffee C sugar, one cup rolled peanuts. Melt sugar in hot pan. Mix with peanuts, pour into a hot pan, and spread with a knife.

Peanut Nougat.

One pound of granulated sugar, one quart of peanuts. Blanch peanuts (may chop), and sprinkle with one-

fourth of a teaspoonful of salt. Melt the sugar, keeping it from sides of pan. Pour in the nuts, and turn into buttered dish to cool.

Maple Cream.

One cup of brown sugar, one-fourth cup of granulated sugar, one-half cup of milk or cream. Cook without stirring until it will form a soft ball in cold water. Remove from the fire, and beat until creamy, pour into shallow pan (buttered), and cut into cubes.

Walnut Cream.

Another delicious compound may be made by adding walnut meats to the maple cream just before removing it from the fire.

If one level tablespoonful of glucose is used with the above, there will be no danger of its being grainy.

Maple and Nut Bar.

One pound of maple sugar, three-fourths cup of thin cream, one-fourth cup of boiling water, two-thirds cup of English walnuts, or pecan nuts, cut in pieces. Put water and sugar into a saucepan. When it boils, pour in the cream. Boil until it gives a soft ball, remove from the fire, and beat until creamy. Brown sugar may be used. When creamy, stir in the nuts and turn into buttered tins to cool.

Maple and Nut Bar—Class Rule.

One-third pound of maple sugar, one-fourth cup of cream, one-eighth cup of boiling water, one-sixth cup of walnuts. Proceed as in home rule.

Nut Roll.

Nut roll is usually appreciated by the children.

One ounce blanched almonds, one ounce English walnuts, one ounce pecan nuts, one ounce pistachio nuts. Mix the above with one-half pound of fondant, and flavor with almond extract. Roll out and cut into desired form.

Another variety may be made by grating fresh cocoanut, and mixing with the fondant.

Fruit Balls.

Chop together one ounce citron, six raisins, one tablespoonful of currants, one fig and three walnut meats. Mix with these a piece of fondant the size of an egg. Roll into balls a little larger than a hazel nut, and place on oiled paper to harden. Cover such with fondant flavored with vanilla. This is done by flattening a piece of fondant in the hand, then rolling around the ball, or melt the fodant, and dip same as directed for cholocate creams.

Cocoanut Bar.

Two cups of sugar, one cup of water or milk, one-fourth teaspoonful of cream tartar, or use two level tablespoons of glucose, one-fourth pound dessicated cocoanut. Stir all but cocoanut until thoroughly dissolved, then cook gently until it forms a soft ball in cold water. Remove immediately from the fire, and when ready,—that is cooled a little,—beat until white, then add cocoanut, and pour out at once. It should be soft and creamy. Fresh-grated cocoanut is better than dessicated.

Chocolate Caramels.

Cream well together one-eighth of a pound of unsweetened chocolate, one-fourth cup of sugar, one-fourth cup of molasses, one-fourth cup of milk or cream, and two tablespoonfuls of butter. Boil all together until the candy cracks when tried in cold water, then pour one-half inch thick in a buttered pan. When nearly cold, mark into small squares. Great care must be taken in cooking, or the caramels will be burned. Do not stir while cooking, but scrape from bottom to prevent burning.

Caramel Creams No. 1.

Two pounds sugar, one cup of thick cream, two ounces of fresh butter. Melt sugar with one-half cup water. When the mixture boils, pour in cream very slowly, stirring, then add butter and flavoring, stirring gently, but constantly. As soon as the syrup is brittle, and has the odor of caramel, pour out and beat, mark as chocolate caramel.

Caramel Creams No. 2.

Milk, one cup; sugar, one cup; molasses, one cup; chocolate, one square (grated); one tablespoonful of butter; one teaspoonful of vanilla. Put all the ingredients except the vanilla into a saucepan, and boil without stirring until it forms a soft ball when placed in cold water. Remove from the fire, and stir until it thickens. Then take into the hands and knead, working the vanilla into it. Form into balls, and after it has dried a little, dip in white fondant melted over hot water, and flavored with vanilla. Or when it thickens, pour quickly into a buttered dish and mark in squares.

To Make Chocolate Creams.

As soon as the white fondant is kneaded until soft and creamy, flavor it to taste with vanilla, and shape it into forms a little smaller than those found at the confectioner's stands, drop on paraffine paper, and let stand until they dry a very little, while you prepare the coating. Confectioners' chocolate gives a coating more satisfactory in appearance and flavor, but the common bakers' chocolate is very good. Grate the chocolate into a teacup. Place the cup in a basin of boiling water, or on the top of the teakettle, but see that no water gets into the cup. When melted, flavor with vanilla. Place a prepared cream on a fork or candy tongs, dip into the cup of melted chocolate, let drain slightly, and place on paraffine paper to dry.

To Make Chocolate Almonds.

Shell and blanch a pound of almonds, and dry them with a cloth. Put a teaspoonful of melted butter in a pan, and shake the almonds about until greased all over, then roast in the oven until a delicate brown. Melt together a half cup of fondant and one and one-half squares of grated chocolate. Stir until thoroughly mixed, and flavor with vanilla, if desired. Dip the almonds same as chocolate creams, and dry on paraffine paper. Peanuts, walnuts, or pecans can be dipped in the same manner.

Marsh Mallows.

One ounce of granulated gum arabic, cover with cold water and let soak one hour, then set the bowl containing it in hot water until the gum arabic is thoroughly dissolved. Strain into double boiler and add one-half cup of granulated sugar and stir continually over the fire in the upper part of double boiler with water under it for at least twenty minutes. Take from the fire and beat until stiff and white. Return to the fire and allow to remain until hot, then add one teaspoonful of vanilla and the well-beaten whites of two eggs; mix well together and pour into molds dusted well with powdered sugar.

Fudge.

One level teaspoonful of glucose, two cups of granulated sugar, one cup of milk or water, two tablespoonfuls of butter, two squares of chocolate (grated) and a dash of salt. Put all except the chocolate into a saucepan and boil until it will form a soft ball in cold water. Add the chocolate and as soon as it is melted remove from the fire, flavor with vanilla, beat well, pour into a greased mold, and when partly cool mark into squares.

Cream Candy.

To one pound of granulated sugar allow one teaspoonful of vinegar, one teaspoonful of flavoring, one-half a teaspoonful of glucose, and one cupful of water. Boil the sugar, vinegar, water, and glucose together until it snaps when tested in water. Add the flavoring, pour out on a greased platter, and when cool enough to handle, pull until white. One-half teaspoonful of cream of tartar may be used instead of the glucose.

Cream Candy No. 2.—Mrs. Clark.

Four pounds of granulated sugar, one pint rich cream, one-half teaspoonful of salt, one pint of water. Let the sugar dissolve before it boils. After it begins to boil, pour the cream in slowly, so as not to stop the boiling, taking perhaps five minutes to put the cream in. Cook to

cracking point (twenty to thirty minutes), so that, when dropped into water, the stick formed can be broken on the side of the bowl. Take off and pour on a slightly greased marble slab, and let cool. Lift from the slab a piece here and there with the fingers to facilitate cooling and pull until white and creamy. It will grain if pulled when warm. It is better after standing a few days.

Cream Candy—(For Class Work.)

One pound sugar, one-half cup cream, one-half cup of water. Proceed as in home rule.

Wintergreen and Peppermint Creams.

One and one-half cups sugar, one cup boiling water, cream of tartar one-half size of a pea. Boil to a soft ball, and treat same as fondant. When stirred to a proper consistency, color a delicate pink, and drop on oiled paper. For flavoring use six drops of peppermint or wintergreen for the above amount.

Almond Creams.

Shell and blanch almonds, and dip in fondant flavored with almond extract.

Orange Creams.

Make small flattened balls of white fondant, and flavor with orange and coat with orange-colored fondant.

Creamed Dates.

Take out date seeds, and fill the cavity with fondant, then cover with fondant.

Bonbons.

The centers of bonbons are made of fondant, shaped in small balls. These may be covered with chocolate, etc. When white is used, flavor as desired, vanilla is preferred. Do not make coating too intense. May dip walnut kernels several times for bonbons, also dates, figs, almonds and raisins.

Tutti Frutti Candy.

Put into the bottom of a greased pan a layer of maple

fondant, well mixed with nuts. Color the second layer with pink, flavor, and mix with it candied cherries cut in quarters, and figs chopped fine. Make the third layer white, flavor with vanilla, and mix with fine chopped cherries, candied nuts, and candied pineapple. Pour a thin layer of plain white fondant over the top.

Stuffed Dates.

Stuffed dates help to make variety. Remove the seeds from the dates and put in their places white rolls of fondant. Candied cherries are stuffed in the same way.

Stuffed Raisins.

Cut each raisin into two parts, and remove the seeds. Put in a small roll of fondant. Put the two parts together again, dip the raisin in egg white, and roll in the small colored candies used for decorating cakes.

Candied Nuts.

Dip nut kernels into white or tinted fondant, and let harden on oiled paper.

Uncooked Candies.

The cooked candies are more desirable, but it is sometimes more convenient to make the uncooked candies.

Beat the white of an egg very stiff. Then add two tablespoonfuls of water. Put in enough powdered sugar to make a thick batter, and stir in cocoanut (grated fresh) until it can be handled. Roll into balls, dip in beaten egg, and cover the outside with as much cocoanut as can be made to adhere to it.

Uncooked Chocolate Creams.

Beat the white of one egg very stiff, and beat into it two tablespoonfuls of sweet cream. Stir in confectioners' sugar until very stiff. Form into balls with the hands, let dry a few minutes, and coat as chocolate creams.

References: Cakes and Cake Decorations—King—Part 2; Candy Making—Catherine Owen; Buckeye Cook Book, p. 139; Philadelphia Cook Book—Rorer—p. 509.

Boston Cooking School Cook Book—Farmer—pp. 446 to 457.

CHAPTER XXXVI.

MISCELLANEOUS.

To Stone Raisins.

Put the raisins in a dish, and pour boiling water over them. Let stand until the seeds will slip, then pour the water off, take each raisin in the fingers, and force the seeds altogether at the stem end, and remove them. Dry same as currants.

To Clean Currants.

Put the currants in a colander, set it in a pan of water, and wash them, letting sand and stems pass into the water. Use as many different waters as seem necessary to clean them. When clean, put on a cloth, and dry in the air, stirring occasionally.

To Procure Onion Juice.

Peel the onion, cut in pieces, and use a lemon squeezer or a potato ricer to extract the juice. When using onion for sauces, etc., first peel the onion, then cut a slice from the end, and scrape with a kitchen knife, or score the onion both ways half way down, making the dice about one-eighth of an inch, and cut in thin slices with a sharp knife. Always put onion in vinegar when it must stand a short time in making salads. Never use an onion that has lain after cutting. Onions absorb odors readily, and are not wholesome after cut surfaces are exposed to the air.

To Make a Thickening of Water and Flour.

Measure the flour, add an equal amount of cold water, and stir until smooth; then add more water, until it is thin as griddle cake batter. Now add carefully a little of the liquid to be thickened, and when very thin, pour slowly into the boiling liquid, stirring rapidly, and pouring slowly. In making a boiled custard, pour the boil-

ing milk over the beaten eggs in the same way to prevent lumping.

To Open a Lobster.

Never open a lobster until ready to use it. First remove the large claws, then take off small claws. If you wish to use the shells, make an incision where the tail joins the body, turn the lobster breast up, place the thumb on the back and break the lobster, then cut along each side (inside the tail) and remove the meat, then break or cut along center of the meat on the upper side and remove vein, which may be red or green, very light or very dark. Now take out meat from body by running the fingers under and pulling up and removing, leaving the stomach or lady in the shell. Pull off the spongy fingers and take out the meat. If the shells are to be used trim and scrub and cut body shell in center. Spongy fingers are the lungs.

To Clarify Mutton Fat.

Free the mutton fat from all objectionable parts, and put to soak in enough cold water to cover. Let stand twenty-four hours and change the water once. Pour off the water in which the mutton fat has soaked and add one cup of liquid (half milk and half water) for each pound of mutton fat, and cook until the liquid is evaporated, then strain out the clear fat and cool. This fat may be used for ginger snaps and ginger cake.

To Cook a Lobster.

Plunge head first into boiling salted water, and cook rapidly for twenty minutes, if the lobster is large; otherwise, a shorter time. A small lobster will cook in eight minutes. Too long cooking makes the meat tough.

LUNCH DISHES.

Sweetbreads and Mushrooms on Toast.

Blanch the sweetbreads by allowing to lie in salted water for a time, then put to cook in boiling salted water,

and let cook until tender. Let cool in the water in which they were cooked. Separate at the natural division lines, and free from inedible parts. Prepare a white sauce, using three-fourths of a cup of chicken or veal broth, and one-fourth of a cup of sweet cream. Put into a saucepan over the fire one and one-half level tablespoonfuls of flour, and one of butter. Stir until smooth, then add the liquid, and stir constantly, allowing to thicken, and then boil a few minutes. Season to taste, add the sweetbreads, and about one-sixth as many button mushrooms, let boil, pour over nicely-browned toast, and serve.

Breast of Chicken in Cream.

Tear out the breast of a cold boiled chicken in two parts. Make a sauce of chicken broth, flour and butter or milk thickened with flour and butter, same as for sweetbreads. Put the chicken breasts into it, boil up, and serve garnished with calf's liver cooked in chicken broth, and cut to resemble chicken livers.

Boiled Tongue With Tomato Sauce.

Freshen a tongue in cold water, then cook in boiling water until tender. Serve hot with a dressing made from strained tomatoes, to which the browning from the roasting pan has been added, using one-fourth as much browning as tomato. Thicken same as tomato sauce for meats. Skewer the tip of the tongue to the base before cooking, to keep in place.

Mock Terrapin.

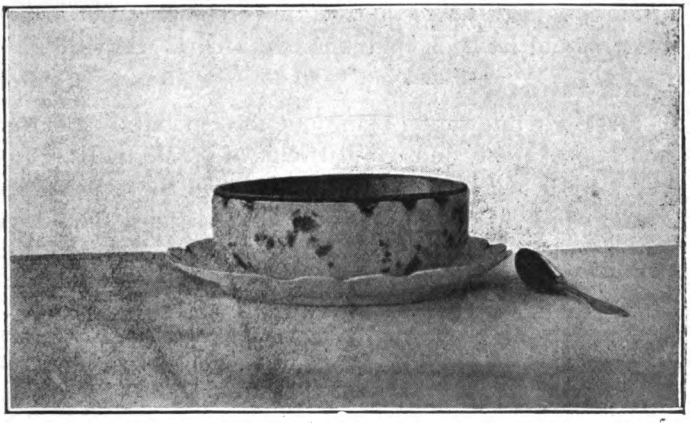
Make a brown sauce as follows: Put into a saucepan one and one-half tablespoonfuls of flour, and one of butter. Stir until a nice brown, then add one cup of beef broth, minus two tablespoonfuls, which have been mixed with one tablespoonful of flour. When the liquid boils, pour the mixture into it and cook until it thickens, then add cooked veal freed from hard parts and cut into small dice, and a few canned button mushrooms. Season to taste, and serve.

Luncheon Sweet Potatoes.

Wash and steam sweet potatoes of equal and medium size. When tender, remove the skins and cut once lengthwise. Mix together equal parts of butter and sugar, and add hot water to make of the consistency of thick cream. Lay the potatoes evenly in the baking dish, pour a portion of the sauce on each potato, and brown in the oven. Serve in the dish in which they were baked.

Macaroni or Spaghetti in Tomato Cups.

Select ripe, red tomatoes of medium and uniform size, cut off the blossom end one-third of the way down, and



Baking Dish.

scoop out the inside. Cut out the core, and mix the remainder with spaghetti, which has been broken in three-inch lengths, and steamed for three hours. Use three parts of boiling water to each part (cup) of spaghetti, and one teaspoonful of salt to each pint of liquid. Sprinkle salt and pepper over the scooped tomato, as if it were to be eaten raw, stir in a teaspoonful of butter. take equal parts of tomato and spaghetti, mix well, and fill the cups. Cover the tops with buttered crumbs, and bake about fifteen minutes, but do not allow the cups to become too soft.

Scalloped Oysters.

Wash fresh oysters, drain through a colander, and free them from shells. Season bread crumbs with salt, pepper, and butter, the same as for chicken dressing. Then place in the platter in which the oysters are to be served a layer of crumbs and a layer of oysters, until you have two layers of oysters. Then put in a part of a layer of oysters, and round up the dish. Finish with a layer of crumbs, and place in the oven. Twenty minutes is usually required to bake them.

Creamed Oysters.

Make a thick white sauce as for croquettes, put in the oysters, and let cook until the edges curl. Serve hot.

Oyster Patties.

Make a white sauce, using one tablespoonful of butter and two of flour, and one-half cup of whole milk. Season to taste with salt and pepper, put in the oysters, allowing three to each patty, and let cook until the edges curl. Fill the patties with them.

Oyster and Mushroom Patties.

One-half a can of mushrooms, about two dozen oysters, one tablespoonful of lemon juice. Free the oysters from shells, put into the saucepan, and cook until plump, then dip the oysters out. Add the mushroom liquor to this and sweet cream enough to make two cups. Thicken with six tablespoonfuls of flour and three of butter, add the mushrooms, and when the sauce is cooked, add the oysters, and let boil. Season, and fill patty cases.

Panned Oysters.

Butter, salt, and pepper the pan, and when hot, put in the oysters. Shake quickly over the fire, and turn onto hot toast. Or they may be served without toast.

Creamed Lobster.

In creamed lobster use more pepper than usual, and use a little mustard to tone down the flavor. Mix mustard

with salt. May use also one hard-boiled egg to each cup of diced lobster, as this improves the flavor.

Meat Pie With Potato Crust.

Cut cold meat into small cubes or thin slices. Pour over it meat gravy, tomato or brown sauce. Spread a crust of mashed potato over the meat. Sprinkle with bread crumbs, and bake twenty minutes, or until brown.

Meat Pie With Macedoine Sauce.

Use cold meat, sliced thin, and cut into small pieces. Put this into the dish you wish to serve it in, cover meat with Macedoine sauce, and over this put a layer of mashed potatoes one-half inch thick. Cover this with seasoned, buttered bread crumbs, and bake until a nice brown.

Meat Pie With Tomato Sauce.

Use cold meat, sliced thin, and cut into small pieces. Put the meat into the dish you wish to serve it in, cover meat with tomato sauce, and over this put a layer of mashed potatoes one-half an inch thick. Cover this with seasoned bread crumbs, and bake until a nice brown.

Meat Pie With Rice Crust.

Boil rice in salted water and drain. Prepare meat as for hash, and to each pint of meat which has been prepared, add one beaten egg and sufficient broth or gravy to moisten. Put the mixture into a buttered dish, cover top with rice, and this with buttered bread crumbs and bake.

Beet Croquettes.

Two good-sized beets, one cup of milk, three level tablesoonfuls of butter, six level tablespoonfuls of flour, one-half teaspoonful of paprika, one teaspoonful of salt, one-fourth teaspoonful of mace, one teaspoonful of onion juice. Make the butter, flour, and milk into a sauce, put in the seasoning. Chop the beets fine, and moisten with the sauce. Form into croquettes, let cool, coat, and fry in deep fat. Serve with a sauce.

Sauce for Croquettes.

Two level tablespoonfuls of flour, two level tablespoonfuls of butter, one cup of milk, one-half teaspoonful of paprika, one-fourth teaspoonful of salt, flavor with one drop of onion juice.

Lobster Croquettes or Cutlets.

Make sauce with two tablespoonfuls of butter, three tablespoonfuls of flour, and one cup of milk. Season with salt, pepper, mustard, and lemon juice. Add one pint of diced lobster, and spread on a platter to cool. When cool, shape into cutlets or croquettes, roll in bread crumbs, then in beaten eggs, then in crumbs again, and fry in hot fat. Serve with mock bisque sauce.

Croquettes, like oysters, require very hot fat, because easily cooked. When the food is taken from the fat, put in a piece of potato. Never leave hot fat with nothing in it for an instant.

Mock Bisque Sauce.

From two-thirds of a cup of strained tomato, one tablespoonful of butter, and one tablespoonful of flour, make a sauce. When cooked, remove from the stove, and stir into it one-third of a cup of sweet cream (putting in only a few drops at a time), and stirring constantly. Season with salt and pepper, and serve with lobster croquettes.

Rice Croquettes.

Cook the rice in the double boiler, using three times as much boiling water as rice, salt to taste, flavor with orange, and mix with white sauce. To half a pint of rice use the white of an egg and a few drops of orange extract, half a teaspoonful of butter, and a teaspoonful of cream. Form into balls, coat with egg, roll in cracker crumbs, coat again with egg, and fry in deep fat until a good brown. Or they may be made by simply mixing the drained rice with egg white, using one egg to each cup of rice. Coat and fry as before.

Sauce for Serving Rice Croquettes.

To one cup of fruit juice, strawberry, blackberry, or raspberry, add one-half cup of sugar in which has been mixed one level tablespoonful of cornstarch or two level teaspoonfuls of arrowroot, boil until it thickens and serve with the croquettes. Water may be used instead of fruit juice and fresh fruit cut in pieces and put in while the sauce is hot.

Chicken Croquettes.

One-half cup of chicken, chopped very fine, one-fourth teaspoonful of salt, one-fourth teaspoonful of celery salt, a dash of cayenne pepper, one-sixth of a teaspoonful of white pepper, two drops of onion juice, one-half teaspoonful of parsley, chopped fine, one-half teaspoonful of lemon juice. Mix with this white sauce to make the croquettes as soft as it is possible to handle them. Form into shapes desired, roll in egg slightly beaten with two tablespoonfuls of water or milk, then in crumbs (very fine), again in the egg, then again in crumbs, and fry in deep fat until a nice brown. They can be handled more easily if, before forming, the meat and sauce, mixed together, be spread on a plate and allowed to cool.

Cream Sauce for Mixing Croquettes.

One-half cup of broth or whole milk (chicken or veal broth is used), one level tablespoonful butter, two level tablespoonfuls flour, one-eighth of a teaspoonful of salt, one-eighth teaspoonful of celery salt, one-eighth teaspoonful of pepper, a speck of cayenne pepper.

Serve the chicken croquettes with mushroom or bechamel sauce, or with mock bisque or cream sauce.

Mushroom Sauce.

Mushroom sauce is made by adding one tablespoonful of lemon juice to one cup cream sauce, also one-half cup cooked mushrooms cut in pieces. Brown sauce may be used instead of white.

Bechamel Sauce.

Bechamel sauce is made by making white sauce with clear stock and cream, instead of milk, and is highly seasoned. One whole egg, or two beaten yolks, are added just before serving.

Potato Croquettes.

One cup of mashed potatoes, one-half tablespoonful of butter, very little pepper, both white and cayenne, one-fourth of a teaspoonful of salt, one-fourth of a teaspoonful of celery salt, two drops of onion juice. Form into croquettes, let cool, coat, and fry.

Meat and Rice Croquettes.

Use equal parts of cold boiled rice and finely hashed meat. Mix together, season with pepper and salt, make as moist with white sauce as a chicken croquette, form into balls, let cool, roll in egg and fine bread crumbs, and fry in deep fat. These are very nice moistened with a tomato sauce instead of a white sauce.

To Saute Meat Croquettes.

Either meat or rice and meat croquettes may be made into flat cakes, rolled in egg, then in bread crumbs, and sauted in clarified butter or bacon fat. Brown nicely on each side and serve hot.

Rice and Sausage Hash.

Mix together equal parts of cold sausage and cold boiled rice. Mix with this enough unseasoned white sauce or left-over gravy to make it cling together. Butter the omelet pan, and dust with bread crumbs. Place in this the hash, press down with a knife, and cover. When it is brown on the bottom, and thoroughly heated through, fold like an omelet, turn onto a warm platter, and serve hot.

Potato Hash.

Finely hashed cold boiled potatoes, seasoned with salt, pepper, parsley, and onions, if desired. To this add

enough white sauce or cold gravy to make the particles cling together, but not enough to make a mushy mass. Put into an omelet pan prepared as for sausage hash and cook in the same way. Or use as much stale diced bread as you have potatoes, put together, and cook as potato hash.

Fish Hash.

Melt a tablespoonful of butter in a saucepan, add one cup of water or milk, and two cups of any kind of cold fresh fish, freed from skin and bones, and picked into small pieces. Season to taste, simmer five minutes, and serve on slices of dipped toast. Hard-boiled eggs may always be added to hashed fish, also a flavoring of minced parsley, if liked. Any fish sauce left over from a previous meal may be used instead of milk or water for moistening the hash.

Family Hash.

To prepare the spider for hash, grease well, and cover lightly with bread crumbs. If meat is tough, simmer until tender. Mix chicken, veal, and sweetbreads, but better not have lamb or mutton. Use more potato than meat, season well, and moisten with gravy or white sauce, and cook fifteen minutes, or long enough to form a nice brown crust at bottom.

Hash Cakes.

One cup of cold, hashed meat, one cup of cold mashed potatoes, one egg, beaten light. Mix all together, season to taste with salt and pepper, form into balls or cakes, and brown in a hot frying pan containing a little fat of some kind.

Beef Hash in Tomato Cups.

Use cold beef, hashed quite fine, and cold hashed, boiled potatoes in equal parts. Season with salt and pepper. and a little butter. Wash and wipe firm, ripe tomatoes. Cut them in half, and take out the inside, and fill the shell

with hash. Cover the top with buttered crumbs, and bake in a dripping pan in a medium hot oven, until hash is hot.

Turkey and Oyster Hash.

Cut cold boiled or roast turkey into pieces as large as medium-sized oysters. Use turkey or chicken broth. Put two or more cups of the prepared meat into a saucepan, and enough of the broth to cover it. Set on the back of the range, and let simmer until tender. Cook in another saucepan two tablespoonfuls each of butter and flour until well mixed, but not brown. Add two cups of the turkey broth, and let simmer five minutes. Add a pint of oysters, rinsed and drained. Stir gently with a wooden spoon, and as soon as the edges curl and separate add the turkey meat, season to taste, and serve with or without toast.

Hashed Brown Potatoes.

Scatter one teaspoonful of bread crumbs over a buttered omelet pan before putting the potatoes into it. Use white sauce to moisten the potatoes, but do not make too moist, season with salt and pepper. Fry until brown on the bottom, and fold like an omelet.

Apple Toast.

Toast slices of bread a nice brown. Make an apple sauce, and put a layer of buttered toast into the dish, cover with apple sauce, then put in another layer, and cover it. Let the toast and apple sauce both be hot when put together, and serve hot.

Egg Toast.

Cut slices of stale bread about half an inch thick, and toast a delicate brown. Pour boiling water into a shallow basin, dip the toast in this water, turn over, lay on a warm plate, and spread with butter. Chop hard-boiled eggs, sprinkle with salt and pepper, and spread over the toast.

Riced Egg on Toast.

Prepare the toast as above. Shell the egg, put in a potato ricer, and squeeze over the top of the toast.

Dry Toast.

Cut slices of dry bread about half an inch thick. Dry the surface somewhat, either in the oven or over the fire, before the slice is browned. Toast should be of a golden brown color on the outside, and crisp and dry. Fresh bread which is carbonized on the outside, and clammy within, is not what a wise person would call toast, or offer to his stomach when it needed toast.

Tomato Toast.

Strain two-thirds of a cup of tomato, and put to heat in a graniteware saucepan; when hot, turn into a bowl, rinse the saucepan, and wipe dry. Then put into it one tablespoonful of butter and the same of flour. Stir the flour and butter together as they heat, and do not allow to brown. To this add half a cup of whole milk, and let cook until it thickens. Season both this and the tomato with salt and pepper. Add the tomato to the white sauce, pouring slowly, and stirring constantly, and as soon as mixed pour over nicely toasted slices of bread, and serve.

Meat Souffle.

Make one-half a cup of white sauce, and season same as for hash. Stir into it one-half cup of chopped meat, —chicken, tongue, veal, or lamb. Make boiling hot, and stir into it the beaten yolk of one egg. Let cool, and when cold stir in the white of the egg, beaten stiff. Bake in a buttered dish slowly until done, and serve in the dish in which it was cooked. The souffle may be seasoned with parsley and onion, in addition to the salt and pepper, if desired. All seasonings should be stirred into the white sauce before it is added to the meat. The souffle may be served with mushroom sauce.

Meat Souffle—Class Rule.

One-fourth cup of white sauce, one-fourth cup of chopped meat, one-half egg yolk (well beaten), one-half egg white (well beaten). Make and bake same as directed in home rule.

Escalloped Beef.

Cut cold roast beef or steak into dice, and cook slowly in a very small amount of water until tender. Cook together, until brown, one-half tablespoonful each of butter and flour, and add one-half cup of soup stock or water from the roasting pan, and two tablespoonfuls of strained tomato. Pour over the meat in the dish in which it is to be served enough to make quite moist, cover with buttered crumbs, and bake in the oven.

Escalloped Beef With Macaroni.

One-fourth cup of cold beef, cut into dice, one-fourth cup of macaroni, cut into inch lengths, one-half cup of strained tomato, two level teaspoonfuls of flour, two level teaspoonfuls of butter. Make into a sauce, and season. Pour the sauce over the beef and macaroni. Mix together and boil up. Put into a shallow baking dish, cover with buttered crumbs, and brown in the oven.

Frizzled Beef.

Place one tablespoonful of butter in a frying pan, and when hot, not browned, put in one-half pint of dried beef, sliced very thin. Cook a few minutes over a hot fire, so the beef will curl up, then dredge over it one and one-half tablespoonfuls of flour. Stir and let brown slightly, then pour in one-half pint of sweet milk, and cook till it thickens. Pepper to taste. Serve on toast, or without toast.

Escalloped Mutton.

Prepare in same way as escalloped beef, except leave out the tomatoes, and use more mutton broth in their place.

Cubes of Veal in Mushroom Sauce.

One cup of veal cubes, one-half cup of mushrooms, one hard-boiled egg, one level teaspoonful of butter, one level teaspoonful of flour, one-half cup of milk, one-half cup of veal broth. Make a white sauce. Season to taste, add the veal and chopped egg, and serve hot.

Creamed Hamburg on Toast.

One-half cup of milk, two teaspoonfuls flour, two teaspoonfuls butter, one-fourth cup (scant) chopped, fresh meat. Heat the butter and flour together, and pour the cold milk over it. Cook four or five minutes, stirring all the time, and add the meat. Let boil, and serve.

Creamed Codfish With Evaporated Cream.

One tablespoonful of butter, two tablespoonfuls flour, one cup shredded codfish, stirred in one cup of cold water, and drained. Use in sauce one-half cup of evaporated cream, and one-half cup of water. Heat butter and flour together, pour the liquid over it. Cook four or five minutes, stirring constantly, and add the codfish. Boil, and serve.

Codfish Balls.

Soak the codfish, and prepare the same as for creamed codfish. Take two measures of mashed potato to one of the prepared codfish. Mix the codfish and potato, break an egg into this, beat with a spoon until thoroughly mixed, form into balls and fry in deep fat.

Pressed Chicken.

Boil a fowl in as little water as possible until the gristly portions are soft, and the bones slip out. Remove all objectionable portions, and chop the two pounds of veal, which has been boiled with the fowl. Butter a dish, and spread in a thin layer over the bottom, the hashed veal, which has been seasoned and mixed with a portion of the chicken stock, boiled down one-fourth. Put in strips, alternately, of the white and dark meat portions of the chicken, and thin slices of ham and red tongue. Put in another layer of hash, and alternate with the strips of meat, hard-boiled eggs, cut lengthwise, and laid cut side down. Lastly put on a layer of hash. Set away to cool with a weight on the dish.

Chicken Terrapin.

One pint of chicken, diced, or one and one-half pints, if minced, one level tablespoonful of butter, one level tablespoonful of flour, one-fourth cup of cream, one-fourth cup of chicken broth or milk, giblets of chicken, minced fine, one-eighth of teaspoonful of mace, cloves, and red pepper, all powdered, and about equal parts, one-half tablespoonful of lemon juice and currant jelly, mixed, three drops of extract of lemon. Mix the seasoning with the flour. Make the white sauce, mix the meat with it, and let boil. Serve on toast.

Eggs in Anchovy Sauce.

One cup of milk, two level tablespoonfuls of flour, two level tablespoonfuls of butter. Make a white sauce. Use one teaspoonful to three of anchovy paste, as liked. Moisten toast with milk, mix the paste with the white sauce, lay the sliced eggs on the toast, and pour the sauce over it.

Creamed Eggs.

Cook two hard-boiled eggs, cut whites in half, remove yolks, and set these small cups on a platter. Mash the yolks, and add to them one-third as much seasoned bread crumbs, moisten with white sauce, shape into balls with spoon, and place a ball in each white cup. Pour the white sauce on and around them on the platter, cover with seasoned bread crumbs, set in oven, and brown. Serve on the platter on which they are baked.

White sauce: One teaspoonful butter, two teaspoonfuls flour, one-half cup milk, cooked together.

Timbales.

One and one-half cups of flour, one cup of milk, one egg, well beaten, one-half teaspoonful of salt, stir until thoroughly mixed. To fry the timbales, put the batter into a teacup, heat the timbale iron in the fat, and when hot enough to cause the batter to adhere, lower the iron into the cup of batter to within one-half inch of the top,

then put into the hot fat, and fry until the cup slips from the iron.

Minced chicken, turkey, or veal with white sauce are good to fill the timbale cups. To make a large timbale, butter a dish, and line it with cooked rice, then put in the minced meat, and bake until the rice is a nice brown. A tomato sauce may be used with the meat (in this case) instead of the white sauce.

Deviled Meats.

Deviled meats are like scalloped meats, except they are more highly seasoned, and cut finer.

Giblets With Mushrooms.

Cook chicken giblets, and chop them, or cut into dice. Make a brown sauce (page 517) of chicken or veal broth, with the mushroom liquor added from half a can of mushrooms. Put the giblets and mushrooms in, let it boil, season, and serve.

Mock Pate de Fois Gras.

One calf's liver, one calf's tongue, one teaspoonful of cayenne pepper, one-fourth of a nutmeg, one-half teaspoonful of cloves, one teaspoonful Worcestershire sauce, one teaspoonful of onion juice. Cook the liver in boiling salted water until tender, let cool and grate. Mix the seasoning with the liver, mashing it very fine. Put in a dish alternate layers of liver and tongue, cut in small, thin slices to resemble truffles.

Turkish Pilaf.

Strained and seasoned tomato, one cup; stock, one cup; rice, two-thirds cup; butter, one-half cup; salt, one teaspoonful; pepper, one-fourth teaspoonful. Cook one pint of tomatoes with one small chopped onion, one sprig of parsley, two cloves, and two pepper corns ten minutes, and strain. This gives the one cup of tomato. Wash the rice through three waters, and put in top of double boiler. Add stock, tomato, salt, and pepper. Steam one hour, or until the rice is tender and dry. Put the butter in bits on

top. Do not stir, but cover with a towel, let stand to absorb all moisture (ten minutes), and serve.

Stuffed Onions.

Remove the husks from medium-sized, perfect onions. Cut off about one-third of the onions at the top, and remove the inner part, leaving only a shell or cup. Fill this with finely hashed meat and potato, in equal parts, seasoned with pepper and salt, and moistened with cold gravy. Cover the top with bread crumbs seasoned with salt, pepper, and butter. Place in a dripping pan, and bake in not too hot an oven until the onion is soft, but not cooked enough to mush or break. Serve hot for luncheon or supper.

Stale Bread Griddle Cakes.

Use crusts and ends of bread for this. Put the stale bread in a bowl, and pour over it as much hot sweet milk as it will absorb. Let stand over night, then mash through the colander, and add half as much flour as there is pulp, and mix as other griddle cakes with sweet milk. To make with soda, soak the bread in buttermilk, and proceed as for griddle cakes with soda.

Stale Bread Griddle Cakes—Class Rule.

One cup of coarse bread crumbs, one-half cup of milk, one-fourth cup of flour, one-fourth teaspoonful of baking powder, one-half teaspoonful of fat (butter or lard), one teaspoonful of beaten egg. Pour the cold milk over the crumbs and let soak until soft, then press through a puree sieve. Add the flour, salt, shortening and egg and beat well with the spoon, then add the baking powder in a teaspoonful of saved-out flour. If sour milk is used, add one-fourth teaspoonful of soda instead of baking powder with the teaspoonful of flour.

Left-Over Meat Sauce.

Sauce for reheating dark meats: Sweet corn, strained tomatoes, and clear soup in equal quantities form a basis for a brown sauce for reheating dark meats. Strain

sauce before using, then cut into it hard-boiled eggs, as liked. Thicken the sauce as for creamed potatoes.

Tomato Sauce.

One cup of strained tomato, one tablespoonful butter, one tablespoonful flour. Heat the butter and flour together, pour in the cold tomatoes, and cook four or five minutes.

Sauce for Escalloped Dishes.

One-fourth cup of whole milk, one teaspoonful of flour, two teaspoonfuls of butter. Make sauce of these, and season to taste with salt and pepper.

Escalloped Chicken, etc.

One-fourth cup of chicken or veal cut in small dice, one-eighth cup of cooked egg (left over in whatever manner cooked), cut equally fine, one-eighth of a cup of cooked rice. Add to the sauce, boil up, and serve on dipped toast.

Horseradish Sauce.

Two tablespoonfuls of horseradish, two tablespoonfuls of fine bread crumbs, one tablespoonful of vinegar. Heat all together, and season with salt and pepper.

Made Mustard for Cold Meats.

Best mustard, one and one-half level tablespoonfuls; sugar, one level tablespoonful; salt, one-half teaspoonful; vinegar, one-fourth cup; butter, one teaspoonful. Mix ingredients, and cook until it thickens, then add the yolk of one egg, well beaten, cool, and use.

Chicken Pie.

Pick the chicken from the bones and cut into small pieces. Make a sauce by using half chicken broth and half sweet milk thickened with flour. Make a crust same as for shortcake, line the baking dish with the crust, fill with paper, lay the upper crust on and bake; when done, remove the top crust and take out the paper. Fill the crust with hot chicken and sauce, replace the top crust, and serve.

Chicken Pie—Class Rule.

One-fourth cup of chicken cut in pieces as desired, one-fourth cup of milk and one-half cup of broth, thickened with two teaspoonfuls of flour mixed with two teaspoonfuls of milk, cook until it thickens, season with salt and a very little pepper, put in the chicken, let come to a boil, and fill the crust.

Children's Parties.

Small children enjoy things which are out of the usual in form, size and color. The refreshments for a children's party should be simple, but attractive and palatable. They should consist of such things as are least liable to disturb the digestion, for children exercise little discrimination in eating. Oranges peeled, divided into the natural divisions and served in orange baskets, or orange cups, afford the child far more pleasure than do oranges in their natural form.

A bird or animal cooky is much better, to their taste, than a common, round one.

Sandwiches made of bread cut very thin and buttered, with a lettuce leaf laid between the slices so that its green color shows through the thin slices and its curly edge shows on the border are attractive and wholesome. With the aid of a biscuit cutter one can make sandwich moons and crescents with little trouble and waste. A kitchen knife is the only tool necessary to enable one to make sandwiches in the form of stars, diamonds, triangles, etc. The child enjoys a sandwich made of buttered bread with chopped nuts between.

Either angel cake or sponge cake is more wholesome than butter cake, and can be made equally attractive by frosting and decorating as desired. Simply a white frosting with the name and age, or the birth date in colored letters, pleases the small child. This may be done by tracing the letters with a colored frosting, or with small colored candies.

Butter cake mixtures may be baked in tiny pans and dipped in frosting. Cookies and ginger snaps may be cut in fancy shapes and decorated with colored frostings. Those who object to using the colors sold as vegetable

Child's Breakfast.

colorings and used for tinting candies, frostings, etc., can easily make a sufficient variety of colorings at home. Green coloring can be made by tying spinach leaves loose-

ly in cheese cloth, placing the package in a vegetable ricer and squeezing. After the juice is boiled to the consistency of syrup it is ready for use. Pink coloring may be obtained by boiling a mature beet, being sure that the skin is not broken in any part and leaving the top on. When done, rub the skin off in cold water, cut the beet into bits, put through a vegetable ricer and then through cheese cloth, and use same as spinach coloring.

To make yellow frosting, put a raw egg yolk into a cup and put into it four times as much powdered sugar as egg and beat until thick as frosting should be, flavor and use.

Little souvenirs may be made into a birthday pie by tying a ribbon with a card bearing the name of the child for which the trinket is intended attached to the end of it. These packages may be placed in a pretty basket and a dainty doily or napkin thrown over it. Let the children gather about the table on which the basket is placed and have each child find his own piece of pie by looking for a card with his name on it, when each has found his own name uncover the pie and let each child pull out his piece by the ribbon attached.

Little children find pleasure also in having a play post-office behind a screen in a corner of the room, where they may go and ask for their special parcel.

Popcorn Balls.

Pop a basin of corn. Remove all hard and partially popped grains. Boil molasses until it will hair, pour it over the popped corn, which has been sprinkled with salt. Use only enough molasses to make the corn stick together. Form into balls or pack in a pan greased with butter. If packed in a pan, set to cool, then turn out and cut into shapes desired. One-fourth as much sugar as molasses and a little butter may be used in the syrup, in the proportion of one teaspoonful of butter to one cup of syrup.

Tinted Popcorn Balls.

Make same as above, except use white sugar instead of molasses and color slightly with red vegetable coloring.

Popcorn Cake.

Pop the corn and allow it to become cold, then roll with a rolling pin to break the grains somewhat, or grind the corn in coffee mill, pour over it a mixture prepared same as for popcorn balls, but use a little more than for balls. Pack in a narrow pan, and when cold and firm, slice.

Popcorn and Nut Cake.

Make same as popcorn cake except add one-third as much chopped nuts as shelled corn. Use hazel nuts, peanuts or walnuts. Children enjoy plain popcorn with milk or cream.

Hints for Busy Housekeepers.

Regularity with regard to meals saves time, health, patience and money.

Success or failure depends on the manner of doing the many small things which form the sum total of our housework.

"There is no substitute for thorough going, for ardent and sincere earnestness in the home."—Dickens.

Vinegar cruets should be cleaned inside by filling with ammonia water, lye water, or with water containing a little baking soda, allowing them to soak, and then washing well with soapsuds.

Water bottles can be cleaned by filling with vinegar, allowing to soak well and washing in soapsuds and wiping dry and polishing with a soft cloth.

For cleaning the inside of a glass lamp use lye or strong soapsuds and soak several hours. The mixture should be as hot as can be used.

To prevent oil gathering on the outside of the lamp, turn the wick below the tube before setting the lamp away.

To clean lamp burners and wicks, boil in a strong solution of soap, water, and kerosene, then rinse and wipe dry.

Lamp flues may often be successfully cleaned by placing the hand over the lower end, blowing into the chimney, then wiping inside with a soft paper or cloth.

An old stiff tooth brush is useful in removing the charred portion from a lamp wick.

Egg stains can be removed from silver by rubbing with salt on a damp cloth.

Generally speaking, the temperature of cold storage rooms is about 34° F.

Tender fruits to be kept in cold storage for a few days should be just ripe; they will keep better than when under-ripe.—Siebel.

Green fruits and vegetables should not be allowed to wither.

Sour fruit will bear less cold than sweet fruit.

Frozen fish must necessarily lose some of their juices in cooking and should be used only in the close season when fresh fish cannot be obtained.

June butter is best, if one must have butter packed and stored.

Frozen oysters should never be used.

Eggs to be stored for use later must be strictly fresh, all bad ones culled out by candling.

Eggs will absorb bad odors and should not be stored with cheese or other articles exhaling a strong odor.

All foul air in storage rooms must be removed by ventilation if the best results are secured.

To keep meat fresh, hang in a cold, dry place and allow the air to circulate freely about it.

When frozen meat must be used, it should be thawed very gradually.

All green vegetables should be bright and crisp.

When buying eggs choose those which are heavy in proportion to size.

Mushrooms have a fine flavor, but small food value.

APPENDIX.

To Remove Onion Odor from Hands.

Rub the hands thoroughly with salt, then wash them in clear water.

To Remove Stains from Egg Shells.

When eggs have become stained as they often do from lying in the nest with damp hay or grass the shells may be made bright and clean by soaking the egg over night in milk, either sweet or sour, then washing in clear water.

To Make Dry Yeast.

The following formula makes two gallons of yeast before dried:

Put one pint of loose hops in a saucepan, and pour one pint of boiling water over them and let steep ten minutes. Strain the hop water and pour one cup of it into a bowl, and while it is still hot add flour enough to make a thick batter. Have the yeast ready and use two cakes of compressed yeast mixed with a little water or one whole package of yeast foam soaked in water until soft. When the hop batter is just luke warm stir the yeast and sugar into it, set aside and let rise over night. In the morning stir into it five freshly boiled and finely mashed good sized potatoes and a teaspoonful of salt. Thicken with corn meal and dry at once in a current of air. This yeast will make very good bread if used fresh.

Fruit Salpicon.

Juice of one and one-half lemons.

Pulp of two good oranges.

Scant half cup of sugar.

Two cups of water (cold).

Two large, mellow, fine-flavored peaches, pared and cut in small pieces.

Two heaping tablespoonfuls of shredded pineapple.

Half a cup of small green grapes, ripe, of course, but green in color and mild in flavor. Malaga grapes halved and seeded are most excellent, but too large to use whole.

A fourth of a cup of strawberry juice may be added and two or three fine strawberries served in each cup if desired. When this is done the grapes shoud be omitted. Put the ingredients together and let stand in a cold place over night but do not allow to freeze. Serve in sherbet cups or scoop small canteloupes and serve the salpicon in the shells set on a grape leaf placed on a small plate.

Raspberry Sponge Cake.

Three whole eggs beaten separately, one cup of sugar, two tablespoonfuls of cold water, two teaspoonfuls of vinegar, one-fourth teaspoonful of salt, two level teaspoonfuls baking powder, one cup flour. Beat yolks of eggs until thick and lemon colored; add the sugar, and beat it in with a spoon; add vinegar and water and salt, and stir until mixed; then add all except two tablespoonfuls of flour, and beat until well mixed; then add remainder of flour and baking powder, mixed well. Bake in pie tins, in two or three layers. Bake in a moderate oven until done, but not shrunken.

Filling for Raspberry Sponge Cake.

Put two cups of ripe red raspberries into a bowl, and add to them one-fourth cup of red currants washed and stemmed; add enough sugar to sweeten, and mash and stir all together. Let set half an hour, and spread between layers and over top of cake just before serving. Serve without cream.

Plain Cake—Chocolate Frosting.

One-fourth cup of butter, one and one-half level teaspoonfuls of baking powder, one-half cup of sugar, one egg, one-half cup of milk, one and one-half cups of flour. Cream the butter by stirring until soft and pliable; then add the sugar a little at a time, and stir until the mixture

is perfectly light and white; break the egg into this, and stir until well mixed; then add a little flour, and stir until incorporated; add a little milk, and treat in same way until all are used, except two tablespoonfuls of flour; mix the baking powder thoroughly with this, and stir it in last. Put into a shallow greased pan, and bake thirty minutes in a moderate oven.

Chocolate Frosting.

Boil one cup of sugar with one-half cup of water to the hairing stage. Put one and one-half squares of grated chocolate into a bowl, and set over the hot teakettle (removing cover) when the syrup is put to cook, that it may be melted when syrup has reached the hairing stage. When syrup is ready, take from the fire, and pour over the melted chocolate, and stir until thoroughly mixed. Continue stirring until of right consistency for spreading over the cake; then flavor with vanilla, and pour quickly on cake.

Nut Custard Cake.

One-fourth cup of butter, one cup of sugar, two egg whites or one whole egg, one-half cup of milk, one and two-thirds cups of flour, two level teaspoonfuls of baking powder. Stir the butter in a cup until soft and pliable; then add sugar, a little at a time, and continue to stir until the whole becomes light and white; add one egg whole, and stir until thoroughly incorporated; then add a little milk, and thoroughly mix; then a little flour, and incorporate that; then add the other egg, and, when thoroughly mixed with the dough, add a little milk, and so continue until all except one or two tablespoonfuls of flour have been used; mix the baking powder with this, and put it in last, and stir well. Have ready one cup of nut kernels cut in pieces (hickory nuts, pecan nuts, or English walnuts), and stir half of them into the cake dough. Bake the cake in layers in a moderately hot oven. When

done and cooled a little, spread the following mixture between layers:

Custard Nut Filling for Cake.

One egg white, one cup of sweet milk, two level tablespoonfuls of cornstarch, mixed with an equal amount of milk or cream. Put the milk to heat, and add to it six level tablespoonfuls of sugar. Heat to boiling point, and pour over the moistened starch, pouring slowly and stirring to prevent lumping. Return to the fire, and cook a few minutes after it reaches the boiling point; then pour it over the beaten egg white, carefully folding it in; add the nuts, and spread between the layers of cake. Four level tablespoonfuls of flour instead of the two of corn starch may be used in making this filling, if desired.

Yellow Cake.

One-fourth cup of butter, three-fourths cup of sugar, one-fourth cup of milk, scant cup of flour, one and one-half teaspoonfuls of baking powder, one-half cup of egg yolks (five medium-sized eggs usually), one teaspoonful of extract, lemon and vanilla in equal parts. Put the measured butter into a teacup, and stir with a fork until it is soft and pliable; then add a little sugar, and stir well; then a little more, and so continue until all is used and the mixture is light and white. Beat the egg yolks until light as possible; then add them to the sugar and butter, and stir well; add milk and flour alternately, thoroughly incorporating each portion before adding another; add the extract, and beat that into the dough; then add baking powder which has been thoroughly mixed with two tablespoonfuls of flour which have been saved out. Bake in a moderate oven.

White Cake.

One-third cup of butter, one cup of sugar, one-half cup of milk, one and three-fourths cups of flour, two teaspoonfuls baking powder, one-half cup of egg whites (the whites

of about five eggs), one-half teaspoonful extract of almond. Cream the butter and sugar by stirring the butter until soft and pliable, using a teacup and a fork; then add a little sugar, and stir it well into it; then add a little more, and so continue until all is used; add a little milk, and stir until mixed; then add a little flour, and stir it in, and so continue until all the milk is used, and all except two tablespoonfuls of the flour. Mix baking powder thoroughly with remaining flour, and let all set while the cold egg whites are beaten very light; now stir the extract thoroughly through the dough; then add flour with baking powder, and stir that into it; then carefully fold the egg whites into the dough, stirring barely enough to mix, so that no egg will lie in bunches, but no more. Much stirring may make the cake heavy. Bake forty-five minutes in a moderate oven, if put into a brick-shaped bread tin.

One-Egg Cake—To be Used Fresh.

One cup of sugar, one level tablespoonful of butter, one-half cup of sweet milk, one cup of flour, one egg, two level teaspoonfuls of baking powder. Rub the butter with a small portion of the sugar; then mix with the remaining sugar; add the milk and flour alternately, beating well, until half of each is used; then add the egg without beating, and stir until it is thoroughly incorporated; then add remainder of milk and flour.

Six-Egg Cake.

One-half cup of butter, one and one-half cups of sugar, one-half cup of milk, three-fourths cup of egg whites (about six medium-sized eggs make this amount), two and one-half cups of flour, two level teaspoonfuls of baking powder, one-half teaspoonful of almond and lemon extract mixed equally. Stir the butter until soft and pliable before adding any sugar. Put butter into a teacup, and stir with a fork. When the butter is soft, add a little sugar, and stir well; then add a little more, and so continue until the mixture is light and white and one cup of

sugar has been used. Mix remainder of sugar with flour. Add a little milk, and stir it well into butter; then add a little flour, and stir that well into it, and so continue until all the milk has been used and all the flour except two tablespoonfuls saved out for the baking powder. Mix baking powder well with the little flour, and set aside. Beat the egg whites until light. Stir the extract into the dough, then beat the baking powder into it, and lastly fold the beaten whites carefully into the mixture. Put into a brick-shaped bread tin, and bake forty-five minutes. The above cake may be made by using three whole eggs instead of six whites, and putting together as directed for "Cheap Fruit Cake."

Cheap Fruit Cake.

One-half cup of butter, two cups of sugar, four whole eggs, one cup of milk, three and one-half cups of flour, one and one-half teaspoonfuls baking powder, one-half teaspoonful of ground cinnamon, one-half teaspoonful ground mace or grated nutmeg, one cup of chopped figs, one-half cup of raisins seeded and chopped, one tablespoonful of molasses (mix with milk). Cream the butter with one cup of the sugar by first stirring the butter in a teacup until soft and pliable; then add a little sugar, and when mixed add a little more, and so continue until the mixture is white and light. Mix remainder of sugar and the spices with the flour. Take out two tablespoonfuls of plain flour, and mix baking powder with it. Roll the fruit in the flour, and put aside. Break an egg into the mixture, and stir until thoroughly incorporated; then add a little flour, and stir until well mixed. Continue this until flour, milk, and eggs are all used; then stir the fruit into the dough; and lastly, add the bit of flour with baking powder, and stir until thoroughly mixed. Bake in a loaf forty-five minutes.

Cheap Sponge Cake.

Two eggs beaten light. Into this beat one cup of sugar, beating until the mixture is again light. Stir in one cup of flour, with which has been sifted two level teaspoonfuls of baking powder and one-fourth of a teaspoonful of salt. Add one-half teaspoonful of lemon extract and one-half a cupful of boiling water. Stir as little as possible, and have the batter smooth. Turn immediately into a previously greased cake pan, and put at once into a moderately hot oven. Bake forty to forty-five minutes. If baked too rapidly, the cake will be tough, and not rise properly.

Banana Cake.

Two eggs beaten light, one cup of sugar beaten with the eggs until all is light, one cup of flour; sift with the flour two level teaspoonfuls of baking powder and one-fourth of a teaspoonful of salt; one-third of a cup of sweet milk. Beat the flour and milk alternately into the egg and sugar mixture. Bake in three layers in an oven a very little hotter than for sponge cake.

Filling for Banana Cake.

Boil one cup of sugar and one-half a cup of water until it makes a very soft ball when dropped in cold water; then pour slowly over the beaten white of one egg, beating constantly while pouring, and continue beating until cool enough to spread on the cake. Spread on the top of the bottom layer, and cover with sliced bananas; put on the next layer, and treat it in the same way; put on the third layer, and cover the top in the same manner. This cake should be used fresh, as the fruit discolors if allowed to stand.

Ice Cream—Chocolate Sauce.

One pint of fresh milk, one cup of sugar, one egg, one tablespoon of flour (level), one-half teaspoonful of salt, one quart of thin cream, two tablespoonfuls of vanilla. Mix sugar and salt with the flour. Put one cup of milk to

heat, and add the other to the flour and sugar mixture, and stir well. When the milk is hot, add sugar and milk mixture, and let boil a little. Have the egg beaten, and pour hot liquid over it, pouring slowly and stirring to prevent cooking egg in lumps. Make perfectly cold; then add flavoring and cream, and freeze. Serve with the following sauce:

One and one-half tablespoonfuls of corn starch, two cups of sweet milk, two squares of grated chocolate, two eggs, one cup of sugar, one teaspoonful of extract of vanilla. Mix sugar and cornstarch together, and pour one cup of milk over it, and stir until mixed. Heat the other cup of milk, and when boiling hot pour it over the milk and sugar mixed, and return to the fire, and let boil a few minutes, stirring all the time. Remove from the fire, and pour it over the well-beaten eggs, pouring slowly and stirring constantly to prevent lumping. Return to fire, and cook same as a boiled custard until thick, but not curdled in the least. Pour this boiling hot over the chocolate, which has set in a bowl over the hot teakettle while other work was done and is now melted. Stir chocolate well through, and, when sauce has cooled a little, add vanilla to it. Set where it will be very cold at serving time.

Unscalded Cornmeal Bread.

One and one-half cups of cornmeal, one-half cup of flour, two teaspoonfuls baking powder (or a generous half teaspoonful of soda), one cup of milk (sweet for baking powder, sour for soda), one egg and two teaspoonfuls of sugar, one generous teaspoonful of salt. Beat the egg; add milk to it; then put the meal all in except one-fourth of a cup. With this mix salt and sugar, and soda or baking powder. Bake three-quarters of an hour to an hour in a moderately hot oven, and make a good brown color.

Steamed Fruit Bread.

Two cups of graham flour or whole wheat flour, one cup of milk (if sweet, use two generous teaspoonfuls of baking powder; if sour, use half a teaspoonful of soda). Measure out half a cup of English currants which have been previously cleaned and dried. Seed and chop half a cup of raisins. Take out half a cup of the flour, and mix soda or baking powder thoroughly with it. Mix all the chopped fruit well with the other flour. Put one level teaspoonful of salt into the milk in the mixing bowl, and stir the flour, with fruit in it, into this; then add the flour containing soda or baking powder. Pour the mixture into a greased pudding mold, and steam three hours. Do not allow to be moved during the first hour that it cooks. Have the water boiling when the mold is put in, and do not allow to stop boiling during the time of cooking.

Nut Loaf Cake.

Put into a mixing bowl one cup of liquid, half milk and half water; add to this, half a cake of compressed yeast, mixed with two tablespoonfuls of cold water and half a teaspoonful of salt. Stir white flour into this until a batter is formed, and beat well. Knead whole wheat flour into this until it ceases to adhere to hands or board. Put it into a greased bowl, grease over the top, and let rise three hours, keeping it at just lukewarm temperature, or, better, use a thermometer, and keep it at 75° F. until ready to bake. At the end of three hours it should be double its original bulk. Knead into it one tablespoonful of lard and one of butter and one of sugar. Knead until smooth (keeping it in the bowl), and add one cup of chopped English walnut or pecan meats. Make into loaf same as bread. Let rise until light, and bake.

Left-Over Salad.

One cup of plain boiled potatoes cut in thin slices, one-half cup of salmon torn in small pieces and freed from

objectionable parts, one-half cup of hard-boiled eggs diced. Put potato, egg, and fish into a mixing bowl, and with two silver forks mix thoroughly together carefully, that they remain unbroken. Measure one cup of cooked salad dressing (page 284), and put it into one teaspoonful of mixed seasoning No. 3 (page 286). Stir until well mixed, and dress the salad with it. Let stand one hour in a cool place, that the flavors may blend; then serve on cold plates and on lettuce leaves.

Eggs in Rice Nest.

Fill an escallop shell with cold boiled rice, making it lie up light by lifting with a fork. Make a nest in the center with a spoon or knife. Into this drop an egg, being careful not to break the yolk. Sprinkle with seasoned bread crumbs, and bake in a slow oven until the egg is cooked as desired. When removed from the oven, season with salt and pepper, and serve on the shell.

Codfish Balls (from Left-Overs.)

Put cold mashed potatoes into a bowl, and add one chopped hard-boiled egg to each cup, if you have it, otherwise the potatoes alone. Add to the potatoes a sufficient amount of left-over creamed codfish to moisten so that it can be formed into cakes. Make into cakes, and saute in bacon fat or good drippings. The balls may be made quite moist if dusted with fine bread crumbs.

To Make Thickening of Milk and Flour.

Measure the flour, add an equal amount of cold milk, and stir until smooth; then add more milk, until it is thin as griddle cake batter. Now add carefully a little of the liquid to be thickened, and when very thin, pour slowly into the boiling liquid, stirring rapidly, and pouring slowly.

Plain Caper Sauce.

Use mutton soup stock and thicken with water and flour,—one tablespoonful of flour and one tablespoonful

of water to one cup of liquid. Stir water and flour together in a cup until smooth; then add to the boiling liquid, and stir while cooking. Put in capers last, a scant one-quarter of a cup to a cup of liquid. Serve with boiled mutton.

Plain Parsley Sauce.

Make same as above, except put in one generous tablespoonful of finely minced parsley instead of capers. Serve with boiled mutton.

Plain Egg Sauce.

Make the sauce as directed for caper sauce, using mutton broth for the liquid. Season with salt and pepper, and add one large or two very small hard-boiled eggs, chopped fine, in place of capers. Serve with boiled mutton.

Plain Veal Pot Pie.

Cut the veal in medium-sized pieces and simmer in a small quantity of water for an hour. Always choose fat veal. Pour off most of the water, but leave enough to cook the dumplings, then thicken with milk and flour and season the poured-off broth, lift the dumplings carefully, and pour over them the gravy.

Stewed Chicken—With Dumplings.

Prepare and cook same as veal pot pie.

Escalloped Beef (Without Butter).

Cut cold roast beef or steak into dice, and cook slowly in a very small amount of water until tender. Stir together in a cup one-half tablespoonful of water and the same of flour, and add one-half cup of soup stock or water from the roasting pan, and two tablespoonfuls of strained tomato. Pour over the meat in the dish in which it is to be served enough to make quite moist, cover with buttered crumbs, and bake in the oven until crumbs are brown. Made-over dishes generally need extra seasoning.

Creamed Hamburg on Toast (Without Butter).

One-half cup of milk, two teaspoonfuls flour, two teaspoonfuls water, one-fourth cup (scant) chopped fresh meat. Stir water and flour together, and pour the cold milk over it. Cook four or five minutes, stirring all the time, and add the meat. Let boil, season, and serve.

To Cook Carrots (Plain).

When carrots are to be cooked, have on the range, boiling in the kettle, such an amount of slightly salted water as in your opinion will allow the carrots to barely cook until tender without burning. The exact quantity of water cannot be given, as it evaporates more rapidly some days than others. Put the carrots in whole, or as nearly so as the kettle will permit. Keep them boiling steadily until tender. Remove the carrots from the kettle, and with a sharp knife divide each through the center. For each half pint of liquid in the kettle, measure out a level tablespoonful of flour, and add a little water to it. Stir these together in a cup until thoroughly mixed, then put into the boiling liquid, and stir until the flour is cooked, and the liquid smooth and thickened a little. Then season to taste with salt and pepper, and add a sufficient amount of vinegar to make it slightly acid. Return carrots to the kettle, let boil and serve.

White Sauce (Without Butter) for Carrots.

Pour one cup of sweet milk into a saucepan, and let come to the boiling point. Put two level tablespoonfuls of flour into a bowl or teacup, and add a little less amount of water (cold). Stir until smooth, and add to the hot milk. Let boil a few minutes, and season with salt and pepper, add one heaping teaspoonful of parsley, stir up, pour over the carrots, and serve.

Plain Sauces for Carrots.

Sauce No. 1: Put one cup of milk over the fire to heat. Measure two level tablespoonfuls of flour and one of

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water. Stir until thoroughly mixed, pour the hot milk over the flour mixture and cook. Season with salt and pepper.

Sauce No. 2: If there is not liquid enough to make the sauce, put in enough rich milk to make the required amount, thicken as before, season, and serve.

Sauce No. 3: Put in enough beef broth to make the required amount of liquid, thicken in the same way as above, put one tablespoonful of vinegar to each cup of liquid, season, and serve. If the vinegar is very sharp, use less.

White Sauce (Without Butter) for Cabbage.

Put into a saucepan one cup of milk. Heat to the boiling point, and add two level tablespoonfuls of flour and a little less of water, mixed smoothly. Let cook until it thickens and ceases to taste of raw flour, season with salt and pepper, pour over the cabbage, and serve.

Some find the cabbage more palatable by removing as much water as possible before pouring the sauce over it. Cabbage may be served with Hollandaise Sauce.

Hollandaise Sauce (Without Butter).

Pour one cup of White Sauce Without Butter, boiling hot, over a beaten egg, pouring slowly and beating rapidly; add one tablespoonful of vinegar or lemon juice. Put over the fire, and heat until the egg cooks a little, but do not allow it to curdle. Season and serve.

Hollandaise Sauce (Without Butter) No. 2.

Stir together, until well mixed, one tablespoonful each of water and flour; add one cup of thin cream, and bring to the boiling point. While boiling, stir in the well-beaten yolks of three eggs, in which has been put one tablespoonful of vinegar or lemon juice; add egg slowly, and continue cooking after egg is in about one minute. Remove from fire, add the seasoning and the egg whites, beaten stiff.

To Cook Celery (Plain).

Scrub with a vegetable brush to remove all dirt from the creases. Cut in half-inch lengths, and cook in a little boiling salted water. When tender, serve with White Sauce Without Butter, same as for carrots, except leave parsley out.

To Cook Onions (Plain).

Peel the onions and put to cook in a small quantity of water (boiling and salted) until tender, then serve with White Sauce, same as for carrots.

To Cook Tomatoes (Plain).

Lay ripe tomatoes in a pan, stem side up, and cover with boiling water; let stand an instant, drain off the hot water, and put cold water on them. Remove the skins, take out the cores, cut the tomatoes in pieces, and put to cook in a granite ware or porcelain kettle, and cook until well done. Season with salt, pepper, and butter, and add bread crumbs.

Or make Sauce No. 1, as for carrots, and mix with bread crusts cut in dice. Thicken the tomato by first putting a little of the tomato into the sauce, then pouring this into the kettle of tomatoes, stir well together, and serve.

Plain White Beans in Cream.

Look over the desired quantity of dry beans, wash, and put to soak in cold water to cover them. Let stand over night, or for several hours, until they have absorbed all the water they will take; then put to cook, using the water in which they have soaked, and adding enough boiling water to cover. For each pint of beans used add half a tablespoonful of salt, and one level tablespoonful of sugar. Set the bean jar in the oven and cover. Let the beans cook until soft, but not dark. When done, make a white sauce by using one tablespoonful of water and one of flour to each cup of milk (as directed for making white sauce

for cabbage). When the sauce is smooth, season to taste, and pour over the beans.

Plain Salsify or Vegetable Oysters.

Wash the roots clean, and remove rootlets. Scrape the thin skin off, and keep in vinegar water, as they discolor very readily. Cut into bits, and cook one and one-half hours in boiling salted water. Keep just enough water to prevent burning. Season same as peas. Salt, pepper, and cream give best results, but it is good served with White Sauce Without Butter, for cabbage.

Creamed Potatoes No. 1 (Without Butter).

Cut cold boiled potatoes in thin slices. Put into the spider, and pour enough whole milk into a bowl to cover the potatoes. Season the milk with salt and pepper, using each to taste a little, but remember that they will taste more after milk evaporates, and do not use too much. Pour the seasoned milk over the potatoes, place spider where the milk will be hot enough to evaporate without the necessity of stirring to prevent burning, because stirring mushes potatoes. Set an asbestos mat under spider when milk is hot, and allow to cook until the milk which remains has the consistency of cream. Serve at the same meal with boiled eggs.

Creamed Potatoes No. 2 (Without Butter).

Cut cold boiled potatoes in thin slices. Put one cup of sweet milk in a saucepan, and set on range. Stir together in a teacup two tablespoonfuls (level) of flour and a little less of water, and when milk boils pour this mixture slowly into it, stirring constantly to prevent lumping. Season to taste with salt and pepper, and, after it has cooked a little, pour over the potatoes in spider. Let boil, and serve.

Creamed Turnips (Without Butter).

Pare tender fine-flavored turnips, cut in dice. Wash and steam, or boil in little water. When tender and the water practically all evaporated (if boiled), make a sauce in the following manner: Put one cup of milk in a saucepan over the fire. Stir together in a cup one tablespoonful of flour and a little less of cold water, and when the milk boils stir this into it, pouring slowly and stirring constantly. Continue to stir until it has boiled a few minutes, remove from fire, season, and pour over the turnips; let boil, and serve.

To Cook Peas Dry.

Shell and wash fresh green peas. Put to cook in plenty of water. Cook until tender, then allow the remaining water to evaporate. When all has evaporated except three or four tablespoonfuls, season the peas with salt, pepper, and butter; cover, and allow them to cook five or ten minutes, lifting the saucepan occasionally, and shaking, to better mix the seasoning with the peas.

Plain Macedoine Meat Sauce.

Sauce for reheating dark meats: Sweet corn, strained tomatoes, and clear soup in equal quantities form a basis for a brown sauce for reheating dark meats. Strain sauce before using, then cut into it hard-boiled eggs, as liked. Thicken the sauce as for creamed potatoes without butter.

Plain Tomato Sauce.

One cup of strained tomato, one tablespoonful water, one tablespoonful flour. Stir the water and flour together, pour in the cold tomatoes, and cook four or five minutes.

Non-Butter Sauce for Escalloped Dishes.

One cup of whole milk, one tablespoonful of flour, and one of water. Make sauce of these, and season to taste with salt and pepper.

Diced Chicken in Bisque Sauce.

One-fourth cup of chicken or veal cut in small dice, one-eighth cup of cooked egg (left over in whatever manner cooked), cut equally fine, one-eighth of a cup of cooked rice. Pour over it enough "Non-Butter Sauce for Escalloped Dishes" to cover it, let boil, and serve on toast.

Brown Sauce.

One pint of chicken or veal broth, one tablespoonful of butter, and two of flour. Melt the butter, add the flour, and stir until a good brown, but do not allow it to burn. Put four level tablespoonfuls of flour into a teacup, and add broth or water enough to make a thin batter. Mix the browned flour with this, and add to the boiling liquid. Rinse the saucepan, and add this liquid also. Stir until the flour is cooked and the liquid thickened. Season with salt and pepper, and add very little onion, if desired.

Cold Lemonade.

Grate the yellow rind off one-half of a lemon, and pour a generous cup of boiling water over it. Let it stand while you squeeze the lemon, then add lemon juice and one-third cup of sugar, and set where it will become very cold before serving.

Cold Orangeade.

To the juice of one sweet orange add half a teaspoonful of lemon juice, one and one-fourth tablespoonfuls of sugar, and two-thirds of a cup of water. Stir until sugar dissolves, strain, and make very cold before serving.

Cranberryade.

Cook half a cup of cranberries in a generous cup of water until the skins break, mash the fruit, and strain through scalded cheesecloth. Do not squeeze, but simply allow to run through; add one teaspoonful of lemon juice and three and one-half tablespoonfuls of sugar. Make very cold, and serve.

Raspberryade.

Half a cup of raspberry juice, one teaspoonful of lemon juice, half a cup of water, a generous half tablespoonful of sugar. Stir until sugar melts, and set away to cool.

Jelly-Flavored Ice Water.

Into three-fourths of a cup of water made very cold (but never put ice into it) stir one teaspoonful of green grape, currant, barberry, or crabapple jelly. First mix the jelly with a little hot water, that it may not float about in lumps; add a very little lemon juice, if desired, and serve cold.

Pineapple Soup.

A generous half cup of shredded pineapple, one-third of a cup of orange juice, one and a half teaspoonfuls of lemon juice, a generous half tablespoonful of sugar (less if canned pineapple is used), one teaspoonful of arrowroot. Strain the fruit pulp through cheesecloth, and squeeze juice out. Moisten the arrowroot with cold water; add arrowroot and sugar to fruit juices; bring to boiling joint, and let simmer a few minutes; add half as much hot water as there is of the liquid; cool, and serve.

Raspberry and Currant Soup.

Scant half cup of raspberry juice, scant fourth cup of currant juice, scant half cup of water, one and one-half teaspoonfuls of lemon juice, scant half tablespoonful of arrowroot. Moisten arrowroot with cold water, add to other ingredients, boil a few minutes, sweeten, and cool.

Junket Whey.

One junket tablet, one pint of whole milk (fresh). If the milk has cooled, warm to about the heat of new milk. Dissolve the tablet, and put it into the milk, and stir until mixed. Keep the milk luke warm until it separates well. Cut the curd with a knife, and strain the mixture through a cheesecloth bag. May use a teaspoonful of liquid rennet instead of the tablet for forming the curd. After

straining, make the liquid cold, and serve as it is, or add lemon juice to taste. May use less rennet, and keep warm longer in curding.

Pineapple Frappe.

One pineapple pared and shredded, the juice of three lemons, one and one-half pints of sugar, one and one-half pints of water. Make a syrup of sugar and water, and mix well with other ingredients; then add about three times as much cold water as there is of the mixture. Freeze very little, and serve; or simply make very cold, and use as a beverage.

Gooseberry Jelly.

Wash green gooseberries, and put to cook in a little water (just enough to show through the berries). Cook ten or fifteen minutes, or until they are soft and burst open; then turn into a jelly bag, and allow to drain. Measure the juice, and return to the fire. Cook eight minutes after it begins to boil. Add as much sugar as there was juice. When it again reaches the boiling point, cook two minutes, and turn into glasses.

Black Raspberry and Currant Jelly.

Look over equal parts of currants and black raspberries, leaving currants on the stems, and washing both. Mash the two together, and cook just enough to make juices run freely. Pour into a pointed strainer, and let drain. Measure the juice, and put to cook. Measure an equal amount of sugar, and when juice has cooked ten minutes add the sugar. Let boil up well, so that sugar is all melted, and pour into glasses. Let stand twenty-four hours; then put papers over the tops of glasses, or pour hot paraffine over jelly.

Hygienic Dessert.

Heat in a double boiler one quart of whole sweet milk. When boiling hot, add one teaspoonful of salt and one-

third of a cup of cream of wheat. Let cook one-half hour, stirring occasionally the first fifteen minutes. When the cereal has cooked one-half hour, pour it over one whole egg beaten until light and sweetened with two tablespoonfuls of sugar. Stir only enough to thoroughly mix the ingredients. Serve either hot or cold, with cream or with fresh fruit.

Bills of Fare for Farmers.

There are several reasons why it is well to make out each morning a bill of fare for the day, even if no more time is spent than simply to think it out. Because the family often consists of aged people, laborers and children and it is necessary that each find on the table the kind, quality and amount of food suited to the needs of the body and to the palate of the one partaking of a meal. One can thus be more certain of securing needed variety from day to day. It is also easier to use the left overs wisely and economically. Bills of fare should be simple—that is, there should be few courses in a meal. No one needs many courses in a meal and farmers usually have the good sense to abstain from such customs. There are a few rules which should always be kept in mind, if one would have the best results. No two articles similar in flavor and general properties should appear in the same meal, except, of course, some may be similar to those always on the table, such as bread, butter, sugar, etc. Neither is there any good reason why tomatoes raw and cooked should not appear at the same meal if some like them one way and not the other. There is no good reason why a vegetable whose season is short at best, as asparagus, green peas, etc., should not appear on the table on consecutive days. They can be dressed in different ways and thus afford variety, and if the family exercise due self control in the amount eaten, there will be no danger of their tiring of it during the short time it is to be had fresh.

The following few bills of fare will serve to illustrate the author's idea:

BREAKFAST.

Strawberries. Rolled Wheat Mush.
Sugar. Cream.
Bread. Butter.
Meat. Potatoes. Rolls.
Coffee. Milk.

BREAKFAST.

Grapes. Boiled Rice.
Bread and Butter. Cream and Sugar.
Poached Eggs. Hashed Potatoes.
Dry Toast. Coffee. Milk.

BREAKFAST.

Fruit Sauce.
Cornmeal Mush. Sugar and Cream.
Bread. Butter.
Plain Boiled Potatoes.
Codfish in White Sauce.
Milk. Coffee.

BREAKFAST.

Apples.
Oatmeal Mush. Sugar and Cream.
Broiled Bacon. Creamed Potatoes.
Bread. Butter.
Milk. Coffee.

Fruit, or fruit sauce, is placed first on the breakfast bill of fare because fruit taken at the beginning of the morning meal is found by some to be both pleasing and beneficial. Strawberries, blackberries, peaches and bananas are each very palatable (in their raw state) with wheat mush. Eating fruit rather than cream with mush gives to some a pleasing variety. Cornmeal mush and oatmeal mush make a better food with milk than with cream and sugar, but on account of greater palatability it is sometimes better to take the cream or fruit, as the

mush will not be eaten if served with milk, and cereals are a valuable addition to the morning meal. It is not necessary in the manufacture of cereals that any of the edible portion of the grain be excluded from the finished product. Cereals therefore contain all the mineral matter and muscle-forming material of the grains from which they are made. They also give some bulk to the food, and this is needed by old and young alike. Good bread is truly the staff of life, and while other foods can furnish fat in sufficient amount, no other fat equals butter in flavor for the purpose for which it is used. Lean meat, eggs and fish give muscle-forming material and mineral matter, both of which are needed to give children good teeth and bones and strong muscles, as well as for repair in older bodies. Potatoes furnish materials for heat and energy and also help give the needed bulk in food. Milk furnishes bulk, mineral matter, etc., and pleases the palate and cheapens the expense of living anywhere. Coffee pleases the palate, but increases the expense and often injures the health. For these reasons children should be brought up in such a way as to have no desire for it if possible.

There is no good reason for many courses in a dinner. Four is enough to give all the food a person needs at the time, and since there is but one good reason for eating, viz., to supply the needs of the body, this answers the conditions. The following menus will serve to illustrate the manner in which a variety can be given from day to day in summer, autumn or winter. Soup is used primarily to aid in giving the system the needed bulk; secondarily, to quiet the nerves and allay the feeling of extreme haste which often causes farmers to eat too hurriedly to masticate their food properly, if solid food is taken at the beginning of the meal. Raw vegetables are used for the sake of the vegetable acids and mineral matter they furnish, and also for bulk, variety and palatability. Both raw vegetables and raw fruits help to tone the system

and are cheaper and more palatable than medicine. Cooked vegetables are used largely for bulk and variety, though they of course all give some food value and in case of legumes a goodly amount of it. Desserts are used principally to gratify the palate, and are often eaten when no food is needed. For this reason melons, berries, raw fruit, etc., are better than pastry, etc., for dessert usually. When the busy housewife can find time to prepare no more than three courses she may leave off dessert without fear of injuring any one's health.

DINNER.

Potato Soup.
Chow Chow.
Baked Beans. Steamed Brown Bread.
Mashed Potatoes. Stewed Tomatoes.
Bread. Butter.
Celery Salad.
Apples.
Milk. Water.

DINNER.

Cream of Tomato Soup.
Pickles.
Roast Pork with Apple Sauce.
Browned Potatoes.
Mashed Turnips. Stewed Dry Beans.
Bread. Butter.
Tea. Water.
Grapes.

DINNER.

Bean Soup.
Pickled Beets.
Beef Stew. Baked Potatoes.
Mashed Parsnips. Stewed Dried Corn.
Bread. Butter.
Cabbage Salad.
Apple Pie.
Milk. Cocoa.

DINNER.

Corned Beef.
Boiled Cabbage.
Dried Lima Beans (stewed or in cream).
(Canned) Stewed Tomatoes. Mashed Potatoes.
Bread. Butter.
Beet Salad.
Apples.
Milk. Coffee.

DINNER.

Boiled Pickled Pork and Potatoes.
Asparagus.
Macaroni with Cheese.
Pickled Beets.
Pieplant Shortcake with Cream.
Tea. Milk.

DINNER.

Vegetable Soup.
Young Onions.
Chicken Stew. Dumplings.
New Beets. Mashed Potatoes.
Bread. Butter.
Lettuce.
Gooseberry Pie.
Milk. Water.

DINNER.

Tomato Soup (from canned tomatoes).
Radishes.
Ham and Eggs.
Mashed Potatoes. Green Corn.
String Beans.
Bread. Butter.
Strawberries and Cream.
Milk. Water.

DINNER.

Stewed Chicken. Baked Potatoes.
New Peas.
Sliced Cucumbers.
Custard Pie.
Coffee. Milk.

DINNER.

Potato Soup.
Sliced Tomatoes.
Baked Fish. Mashed Potatoes.
Green Beans.
Bread. Butter.
Cucumbers and Onions (vinegar dressing).
Green Tomato Pie.
Milk. Water.

For the sake of those who are interested in longer dinners simple menus illustrating such will be given.

FIVE-COURSE DINNER.

Julienne Soup.
Celery. Olives.
Broiled Whitefish—Parsley Butter.
Roast Lamb—Currant Jelly.
Green Peas. Mashed Potatoes.
Macaroni with Cheese.
Lettuce Salad.
Salted Wafers.
Ice Cream. Cake.
Coffee.

SIX-COURSE DINNER.

Raw Oysters—Lemon Points.
Bouillon.
Sliced Cucumbers. Olives.
Baked Shad.
Roast Turkey,
Chestnut Dressing, Cranberry Sauce.
Baked Sweet Potatoes. Mashed Potatoes.
Boiled Rice.
Tomato Salad.
Cheese Wafers.
Strawberry Jelly. Whipped Cream.
Cake. Coffee.

For a seven-course dinner game would be added to a six-course dinner.

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*The star indicates illustrations.
†The dagger indicates recipes.

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